Gleanings in Bee Culture

"Created to help beekeepers succeed."

December, 1949 Vol. 77, No. 12

Trip to Europe

By Robert B. Willson, New York City

Bavarian Alps meadow full of many colored flowers and bees

After having traveled extensively in recent years in the Western Hemisphere, it was interesting to plan and exciting to contemplate a trip to Europe this summer. My trip was exciting and, since it was undertaken principally for business purposes, it was gratifying that it was also profitable.

Off on the Queen Mary on June 4, I had a delightful crossing, having had the great good fortune of being placed at a table with thoroughly charming people—gay and intelligent conversationalists all. The people you eat with can make or break your voyage.

I disembarked at Cherbourg, still showing her scars of war, and was met by my friendly French agent, who drove me in his tiny car all the way to Le Havre through famous Normandy. Odd, perhaps, what one will note in a strange land but, coming from a country where red cheeks come from the drug store, it was in-

teresting to see the natural red cheeks of the Norman French — men, women, and children—really red! And the Camembert! Magnifique!

My business was brief in Le Havre and I was later to return to France, so I expected to fly to the next important port up the coast—Antwerp, in Belgium — but there was no such service. It was necessary to go to Paris, fly to Brussels, and then to Antwerp. The multitude of airlines such as we have between medium-sized cities in the United States is unknown in Europe.

The United States buys all of the uranium ore from the Belgian Congo, which gives her dollars in important numbers. However, I don't think beekeeping can ever be important. I visited six beekeepers, all seemingly good careful operators, and voracious readers of many bee journals, but they are of necessity confined to be sideliners because the relatively abundant honey plants of our country are not part of Belgium's agriculture, nor her countryside. Ten kilos (22 pounds), per colony, is a good crop. But of hospitality they have great abundance which this Yankee enjoyed to the fullest.

Holland, depressed by loss of empire, and short of exports, is likewise a country of low honey yields for the same reason, but there are many small enthusiastic beekeepers—and even a small industry in queens and package bees, most of which go to England and Scotland.

Holland is fond of our U. S. buckwheat honey. I felt quite proud of myself when I got an order for a million pounds of it, but there was a catch in it—we had to take sterling for payment, and try as I did to get the sterling converted to dollars, and I think I exhausted all legitimate possibilities then and later when I returned home—I found this an impossible task.

My Dutch agent proved to be a gentleman of great culture, and so, brief though my stay was, we squeezed in visits to the principal art galleries so that I might see some of Holland's treasure of colossal value — paintings of the old Dutch masters, including the well-known Rembrandt and Franz Hals.

Holland is so interesting and her principal city, Amsterdam, so intriguing and beautiful that one hates to leave her canals, her scrupulous cleanliness, and charming people, but on June 15 I had to leave for Germany by plane and in two hours was in Hamburg.

Almost immediately one becomes conscious of the appalling devastation. It is the same in almost all German cities as it is in Hamburg where, in three nights in 1943, forty thousand people were killed in air raids and about 80 percent of the buildings were destroyed. Here and elsewhere in Germany the thought kept recurring—what a price these people have paid for Hitler!

One reason I had wanted to go to Europe was to try to find out why it was, with our surplus of honey in the United States, honey was going into Germany from other countries but none from us. Letters and even a telephone call from New York to the Food Procurement Office of the Joint Export-Import Agency of the U. S. Military Government before I left, had given me nothing of which I could make sense. In Hamburg I met with honey merchants who were anxious to import our honey with their own money. They made up a list at the suggestion of the German authorities for the honey all German dealers wanted for the following 12 months. It totaled twenty million pounds and five million were designated as honey they wanted from the U.S.A.—lesser quantities from a number of other countries all in Latin America. My good friend Hans Schumacher, from California, had preceded me to Germany and had been influenced in having the list drawn and presented with such a large percentage of our honey included.

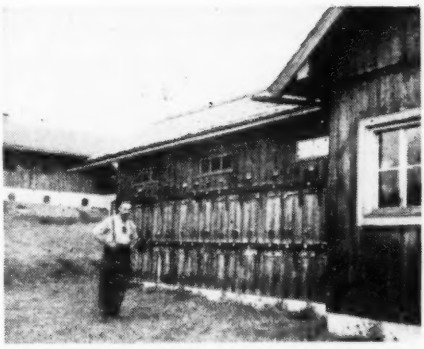
Our Military Government headquarters were in Frankfurt and to the important people I had letters of introduction, so I lost no time getting to the top. I saw a half-dozen men of high rank, but it was a Mr. William Close who gave me the brutal truth. When I told him of the twenty million-pound list and the five million pounds from honey-flooded America, he said quite candidly that it was 999 to 1 that no approval of the U.S. Government authorities would be given to buy honey from us. He explained that he and his colleagues were in Germany to build up their economy and

that meant restricting Germany's trade to countries with whom Germany traded before World War I, and with whom Germany had a U. S.-approved trade agreement. I was given to understand no trade agreement would be made with the United States. He might have added "except over my dead body", because this was his attitude and that of others of our so-called authorities in Frankfurt. The policy is: trade with anybody but not our own people back home.

This policy of our representatives in Germany led to some strange developments. A three hundred thousand-dollar purchase of honey was approved by our Military Government men for Germany to buy honey from Chile—with which country she had a trade agreement. There wasn't this much honey in Chile last June—so the price was run up to $35.00 per 100 kilos, C. I. F. Hamburg—or about 16 cents per pound! Chilean honey is considered low-grade on the world market and this price was double its real value.

A friend of mine from New York was in Frankfurt trying to sell American canned milk while I was trying to sell honey. There was a surplus of milk here, too. While he was there the U. S. Military Government officials approved a three million-dollar purchase of milk for Germany from Denmark at a price 40 percent above the price for the same product in U.S.A. American businessmen were leaving Germany tearing out their hair and loudly denouncing a policy that disregarded conditions at home and caused the impoverished German housewife to pay much higher prices than were necessary.

We had other causes for complaint. The military kicked us out of the hotels that had been taken over by them, as a result of which it was difficult to find places to stay. In cities 60 to 90 percent destroyed, hotels went too and what was good they had taken over, but we businessmen were not to share them after June 22. In Stuttgart I slept 60 feet underground in a converted air raid shelter. The air was so foul I was groggy for hours the next day after a night of it. What hurt was that there were plenty of empty rooms that night in the Graf Zeppelin Hotel, run by the military.



Bee house in the Bavarian Alps

Ipswich and East Suffolk Beekeepers' Association meeting on July 19, which R. B. Willson attended.

It was a relief to get into the rural tranquility of Upper Bavaria, that enchanted land wherein are nestled the quaint twin towns of Garmisch-Partenkirchen, now used as a rest and recreation center for U.S. military personnel. The snow-capped Alps are skirted throughout the meadows of breathtaking beauty. I arrived just in time. This is a land of one crop—hay. It is too cold to grow any grains or other crops — but hay grows — fast and lush—and in the hay there is the greatest profusion of flowers I have ever seen. Reds, purples, pinks, yellows—clovers, orchids—a prunella the bees seemed to love—such a bloom as to make anyone's eyes pop, let alone a bee man. This is a subject for a separate story and I hope to return there some time—and write that story, but it has a sad ending—because here, at the peak of the bloom, June 25, the peasants

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XUM

Observations on Nosema of Honey Bees

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Until a few years ago beekeepers in this country believed that Nosema disease was of only minor importance. Outbreaks of this disease were thought to result from poor beekeeping practices, especially poor wintering conditions for the bees. Recent studies have shown that Nosema disease causes large economic losses to the beekeeping industry. In Europe this disease has long been considered of economic importance.

Nosema disease is caused by a single-celled protozoan parasite, **Nosema apis.** When the spores (resting stage) are ingested by the bees with food or water, they germinate within the bee's stomach (ventriculus or mid intestine), producing motile planonts. Planonts multiply and invade the epithelial cells lining the stomach. The parasites multiply within these cells and pass through additional stages of development, so-called meronts, sporoblasts, and young spores, and finally mature spores are produced. The new crop of spores is liberated within the stomach when the epithelial cells rupture. The spores pass on into the rectum and are voided with the feces, thus becoming a source of spreading the infection.

Karmo and Morgenthaler (1939) reported that Nosema disease develops best at 86 to 93 degrees F., more slowly at 68 to 77 degrees, and not at all at 50 or 98.6 degrees. They think early brood rearing favors the disease.

Lotmar (1944) reported that Nosema disease develops best at temperatures which are most favorable for brood rearing. Below 86 degrees F. and at 96.8 it increases more slowly or abnormally, and it ceases to develop at 98.6 degrees. Infected bees recovered when they were kept at 98.6 degrees for 10 days.

Farrar (1942, 1944, 1947) reported that Nosema disease contributes to the loss of bees and queens, particularly in package-bee colonies, and that hot summer temperatures check its spread.

The present studies were made to determine how temperature affects the development of Nosema disease and how the disease affects honey bees. The work was started at Beltsville, Maryland, in 1942 and continued at Laramie, Wyoming, from 1943 to 1947.

About 300 cages, each containing approximately 125 bees, were used for the cage tests. Results obtained with bees in cages, however, are often not directly applicable to colonies of bees or must be interpreted with caution. About 600 colonies of bees also were used for tests and observation in these studies.

The bees used for most of the cage tests were taken from colonies in which no Nosema-infected bees were detected in a sample of 50 bees. The cages of bees were kept at temperatures ranging from 51 to 99 degrees F. Each cage was supplied with a vial of sugar syrup and one of water. Inoculum was made by mixing approximately a million Nosema spores per cubic centimeter with the syrup. For other cage tests bees were taken from naturally-infected colonies and were not inoculated. The death rate was recorded daily.

At Beltsville the time required for **Nosema apis** to produce the first crop of mature spores at a given temperature after bees were inoculated was used as a measure of how rapidly the parasite developed at that temperature. At Laramie the parasites were counted by the method commonly used for counting bacteria, and the time required for the first parasites to mature was observed. Samples of 10 bees were usually used for counting the parasites. Table 1 shows the number of parasites in the stomachs of bees kept at different temperatures for different periods at Laramie.

Results obtained at Beltsville indicated that the optimum temperature for **Nosema apis**—the temperature at which the organism develops most rapidly—is about 89.6 degrees F. At Laramie, however, the first mature spores appeared a little sooner at 88 than at 89.6 at Beltsville. Table 1 also shows that **N. apis** multiplies most rapidly at 88 degrees, which is approximately 6 degrees be-

*A contribution from the Bureau of Entomology and Plant Quarantine, U. S. Department of Agriculture, in cooperation with the University of Wyoming.

low the most favorable brood-rearing temperature. A wide temperature range is favorable for its growth. This finding conflicts with Lotmar's report (1944) that Nosema disease develops best at temperatures which are most favorable for brood rearing.

More counts of parasites in bees kept at 88 degrees were made, and the results compared with those obtained for the same period at other temperatures. Growth is sharply diminished at temperatures near the maximum (between 98 and 99 degrees) and the minimum (between 51 and 57 degrees). At 88 degrees the maximum number of parasites was reached after about 14 days. After 21 days, however, a marked decline was noticed, and after 28 to 35 days there was a further drop. This decline was probably due to destruction of epithelial tissue by the immense number of parasites, which left less food for their continued development. At less favorable temperature the maximum number of parasites was lower, less epithelial tissue was destroyed, and little or no decline in numbers was noticed. When bees were changed after 7 days at 88 degrees to a lower or higher temperature, increase in the number of parasites gradually slowed down. Parasite counts were not always consistent when bees were changed to 88 degrees after 14 days at a higher temperature, but usually there was an increase.

Bees that became infected at 88 or 94 degrees recovered completely when kept for 14 days at 99 degrees. When changed again to 88 degrees, they were still free from infection after 7 days, but after 14 days infection had reappeared in 10 to 20 percent of the bees in some cages. (not shown in Table 1.). Reappearance of infection is thought to have been caused by spores voided with the feces after the change was made. These results confirm those of Lotmar (1944) that Nosema-infected bees recover when kept at a temperature above the maximum for growth of **Nosema apis**.

Just as occasional individuals among other forms of life escape infectious diseases for unexplained reasons, even when heavily inoculated or intimately exposed, so does an occasional bee escape infection by Nosema disease even though heavily inoculated and kept at a temperature favorable for the disease.

When naturally-infected bees were placed in cages and kept at different temperatures (Table 1), there was only a slight increase in the number of parasites in bees kept at 88 degrees. The indication was that these bees were at nearly optimum temperature for Nosema while within their colony, and that temperature had the same effect on Nosema disease in both naturally-infected and artificially-inoculated bees.

At Beltsville the maximum temperature for development of **Nosema apis** appeared to be about 3 degrees lower and the minimum temperature about 3 degrees higher than at Laramie, and the disease developed more slowly at brood-rearing temperature than it did at Laramie. Tests showed that this difference was not due to the difference in relative humidity at the two stations. Laramie is 7000 feet higher than Beltsville, and has considerably lower humidity.

Nosema-diseased bees in cages showed a rise in death rate above that of checks (healthy bees) within 16 to 40 days after they were inoculated. The average length of life of check bees from four colonies kept at 88 degrees F. ranged from 34 to 58 days after they were caged. The average for bees from the same colonies that were inoculated with Nosema on the day they were caged ranged from 25 to 48 days. Table 2 shows further details of these tests.

Nosema disease shortened the life of bees in cages from 10 to 40 percent. Different cages of check bees from the same colony lived for about the same time. Different cages of diseased bees from the same colony also lived for about the same time but died sooner than the check bees. When the bees in different cages were taken from different colonies, the length of life of check bees, as well as of diseased bees, sometimes varied considerably. Both the check and diseased bees from good colonies of long-lived bees lived longer in cages than did those from poor colonies of short-lived bees. Bees from different colonies of the same breeding were usually much more constant in their longevity than were bees from colonies of different breedings.

Table 1.—Average number of Nosema parasites in the ventriculus of artificially inoculated and naturally infected bees caged at different temperatures for different periods at Laramie, Wyoming.

Temperature in degrees F.	Days Caged	Parasites per Bee
Artificially Inoculated Bees		
51	9	None
	16	None
57	7	70,101
	14	245,371
65	7	116,095
	14	5,483,592
	21	3,978,216
	28	5,526,160
	35	3,815,681
	42	4,256,846
75	7	3,467,478
	14	19,321,475
	21	17,833,432
88	7	4,550,955
	8	4,380,682
	9	9,167,698
	13	26,748,472
	14	41,585,516
	16	32,259,768
	21	17,770,397
	28	9,713,348
	35	8,194,429
94	7	3,397,735
	14	15,254,988
	21	14,637,481
95	7	2,368,354
	14	8,084,137
	21	8,121,192
97	7	7,739
	14	1,129,999
	21	989,874
98	7	541
	14	24,871
	21	25,232
99	7	None
	14	None
	21	None
At 88° for 7 days plus—		
65	7	23,699,023
	14	8,745,883
	21	5,533,899
	28	6,810,953
94	7	15,092,454
	14	7,711,021
	21	8,645,408
	28	603,698
95	7	11,525,101
	14	6,098,899
	21	5,479,721
	28	1,842,053
97	7	6,036,982
	14	464,363
	21	317,326
	28	208,972
99	14	None
At 94° for 14 days plus—		
88	7	13,203,962
	14	7,476,569
	21	13,091,736
At 95° for 14 days plus—		
88	7	11,114,237
	14	7,485,309
	21	14,782,865
At 97° for 14 days plus—		
88	7	6,389,131
	14	9,256,705
	21	3,958,705
At 94° for 7 days plus—		
99	14	None
Naturally Infected Bees*		
97	7	340,547
95	7	4,620,613
94	7	6,207,255
97	14	425,684
95	14	7,321,775
94	14	11,044,580
88	14	14,573,893
65	14	8,312,459
97	21	69,657
95	21	11,119,397†
94	21	7,105,063
88	21	12,209,676
65	21	10,541,499
94	28	5,905,407
65	28	6,569,159

*90 percent of the bees infected with an average of 14,093,852 spores per bee when the teste were started.

†Only 3 bees were used for this count.

During hot summer weather with temperatures ranging up to 100 degrees F. at Beltsville, two strong apparently healthy colonies were each fed a gallon of syrup containing approximately five million Nosema spores per cubic centimeter. Three similar colonies in the same group were retained as checks. Seven days later young Nosema parasites were found in an occasional bee among samples from both inoculated colonies. After 14 days 10 percent of the bees in one inoculated colony and 20 percent in the other showed advanced Nosema disease. A single infected bee was found among samples taken at the entrance of a check colony, but this bee could have drifted from an inoculated colony. One month after the inoculations no infected bees were found in any of the colonies.

The natural longevity of bees in colonies was studied during weekly inspection of more than 600 colonies throughout the active seasons from

Table 2.—Comparison of the length of life of healthy and Nosema-infected bees kept in cages at 88 degrees F. at Laramie.

Colony	Condition of bees	Days before disease caused rise in death rate	Length of life in days: Maximum	Length of life in days: Average
A	Diseased	37	62	46
		37	62	46
		37	66	46
		37	65	46
	Healthy	No rise	78	51
B	Diseased	40	68	40
		40	65	42
	Healthy	No rise	85	58
C	Diseased	24	47	29
	Healthy	No rise	87	50
D	Diseased	20	40	25
		18	35	23
		18	38	23
		16	37	22
	Healthy	No rise	65	34

1942 to 1947. From a study of the number of eggs laid and the amount of brood reared, as well as the population of adult bees and the amount of honey and pollen stored, differences in the longevity of adult bees in different colonies were apparent. Only the significant facts determined from these observations are recorded in this paper.

At times worker bees in different colonies are found to vary considerably in their natural longevity. Good colonies built up rapidly in the spring and had a strong force of field bees by the time the main honey flow started. The bees in these colonies were found to be relatively long-lived, and a large proportion of the adult worker population became old in appearance.

At the other extreme, poor colonies built up slowly even though they had an equal start in the spring and the queens appeared to be equally prolific layers. Adult worker bees disappeared from these colonies about as fast as young bees emerged, and the worker population never increased much beyond the number needed to care for the brood. The entire force of workers always consisted of young-appearing bees.

Most of the colonies were between these two extremes in longevity of worker bees and colony development. The amount of surplus honey crop was roughly proportional to the longevity of the worker bees in the colonies.

It was observed that continued inbreeding shortens the average longevity of worker bees, but there was considerable variation in this respect among individual inbred colonies of the same breeding.

These observations confirm those of Borchert (1940), who by marking bees and liberating them in colonies observed that bees from different colonies differed in their longevity. Borchert also marked Nosema-diseased bees and found that they did not live so long as healthy bees in the same colonies. White (1919) observed that colonies which were heavily infected with Nosema failed to build up, became weaker, or died. There is also abundant additional evidence in the literature that Nosema disease shortens the life of bees in colonies.

In the present work a higher percentage of Nosema-infected bees was nearly always found among the sick and dying than among the healthy-appearing bees from the same colonies. Colonies with heavy Nosema infection had a higher average death rate and made a poorer showing than did colonies with relatively few infected bees.

Although Nosema disease shortens the life of bees in colonies, some colonies with 80 to nearly 100 percent of the bees infected continued to build up satisfactorily, while others with about the same percentage of infection built up more slowly, many of them becoming weaker and dying.

After settled warm weather arrived and Nosema subsided in all colonies, those colonies which continued to build up while infection was heavy were observed to have longer-lived bees than did colonies which were weakened by the disease. Colonies with long-lived bees produced larger populations of field bees and larger honey crops than did colonies with relatively short-lived bees.

Discussion.—The average temperature of broodless bees in winter is well below the most favorable temperature for Nosema disease. In the spring, when a small amount of brood is being reared, a large proportion of the bees in colonies are likely to be exposed to temperatures that are highly favorable for the development of Nosema. During this period infection spreads most rapidly. At the peak of brood rearing, after settled warm weather has arrived, the temperature of the brood nest (93 to 95 degrees F.) is above the optimum for Nosema disease. At this time of year infection subsides. The seasonal rise and fall of Nosema disease coincides with seasonal changes in weather throughout the country, whether these changes come early or late.

The wide variation in the life span of both healthy and Nosema-infected bees in different colonies appears to be highly significant in determining the economic importance of Nosema disease. The fact that some heavily-infected colonies were able to tolerate Nosema disease and to build up rapidly while others weakened or died may help to explain differences in opinion regarding the importance of this disease. Nosema disease retarded the development of colonies in a degree depending upon

the percentage of bees infected and the ability of the bees to tolerate the disease and continue their normal activities. When infected bees lived for a long period the effects of Nosema were not readily apparent. When they lived for only a short period, the colonies were retarded, weakened, or killed, depending upon the percentage of infection. Colonies that became weaker when infection was heavy were the poorer colonies with short-lived bees that would not have equaled the good colonies even if they had not been infected. The longevity of bees in colonies, as well as in cages, was observed to depend largely upon the stock of bees. Different colonies of the same breeding were much more constant in longevity of the worker bees than were colonies of different breeding. Bees that had been inbred for several years did not live nearly so long as bees that had not been inbred.

No way to control Nosema disease has been found. It may be possible to reduce losses from the disease through selection and breeding for longer-lived bees which will be able to build up their colonies in spring even when most of the bees are infected by Nosema disease.

Summary.—Studies were made at Beltsville, Maryland, and Laramie, Wyoming, from 1942 to 1947 to determine how temperature affects Nosema disease of honey bees and how this disease affects the bees.

Nosema apis develops most rapidly at about 88 degrees F., but it develops fairly well within a wide temperature range. The maximum temperature lies between 98 and 99 degrees, and the minimum between 51 and 57 degrees. Development is retarded at brood-rearing temperature (93 to 95 degrees) and at temperatures of broodless bees in winter. Diseased bees recover when kept at 99 degrees for 14 days.

The life span of both healthy and diseased bees in different colonies varies considerably, whether the bees remain in their colonies or are removed and kept in cages. Different colonies of the same breeding varied less in longevity of the bees than did colonies of different breeding. Continued inbreeding shortens the average life of worker bees, but inbred colonies of the same breeding vary in this respect. Good colonies with long-lived bees continue to build up in the spring even when heavily infected. Poor colonies with short-lived bees fail to build up, become weaker, or die when infection is heavy. Colonies with long-lived bees produce stronger forces of field bees and store more surplus honey than do colonies with short-lived bees. It may be possible to reduce losses from Nosema disease through selection and breeding for longer-lived bees that will be able to build up their colonies in spring even when most of the bees are infected.

4-8-48

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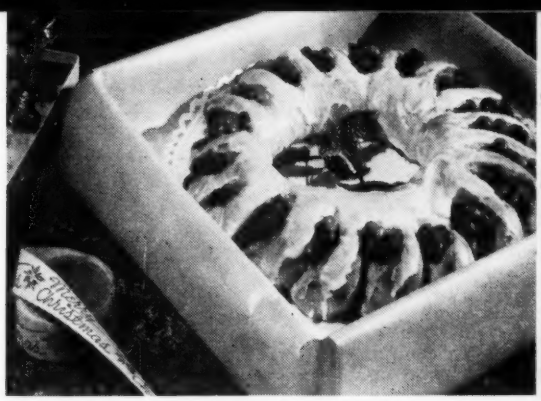
Reprinted January 3, 1949, from Journal of Economic Entomology, 41:(4):603.

W. T. Gran, Jr., of Perrysburg, Ohio, President of Ohio Beekeepers' Association. Picture taken enroute to Pelee Island from Kelley's Island.

Yuletide Honey Gifts

By Mrs. Benj. Nielsen



Cranberry-filled honey coffee cake ring makes a delectable gift.
—Photo Courtesy Kellogg Co.

Are you too busy for a little talkfest about honey goodies? What? Don't you have all the items on your gift list? And most of them wrapped? Well, neither do I! Plan as we will there always seems to be a few on our gift list for whom it is difficult to select that just-right gift. Someone who has practically everything his heart desires, or another who has no hobby that a gift you might select would further. For these persons let's choose an extra special honey goody — everyone has to eat! Any of the recipes chosen this month make products that are good keepers so that you may prepare them well ahead of time, leaving you free for those inevitable last-minute preparations. The grand honey flavor actually intensifies and improves with age. Products continue to keep that just-baked freshness.

Wrap each in gay gift wrappings or package each treat in a clever dish or utensil the recipient can use and you will have a gift you will be proud to give.

Cranberry-Filled Honey Coffee Cake Ring

Four cups cranberries, 1½ cups sugar, 2 cakes compressed yeast, ¼ cup lukewarm water, 1 cup bran, 1 cup scalded milk, ⅓ cup shortening, ½ cup honey, 1 teaspoon salt, 2 eggs, well-beaten, and 5 cups sifted flour.

Cook cranberries and sugar together over low heat, stirring carefully until sugar is dissolved and cranberry skins pop open. Cool.

Soften yeast in lukewarm water. Combine bran, milk, shortening, honey, and salt, stirring until shortening is melted; cool to lukewarm. Stir in enough flour to make thick batter. Add softened yeast and eggs; mix well. Add remaining flour; mix well. Turn dough onto floured board, knead until smooth and elastic. Place in greased bowl; brush with melted shortening. Cover and let stand in warm place until double in bulk. Punch down; divide dough into two equal portions. Roll each portion into a long oblong, about ¼-inch thick. Spread with cranberry mixture. Roll tightly and bring ends together to form ring, moistening ends of each to fasten them together. Place on a greased baking sheet. Cut with scissors from outside edge toward center at 1-inch intervals; turn each section slightly so cut edge is up. Let rise until double in bulk. Bake in moderate oven, 350 degrees F., 20 to 25 minutes. While still warm, brush with confectioners' sugar icing.

Honey Chocolate Bars

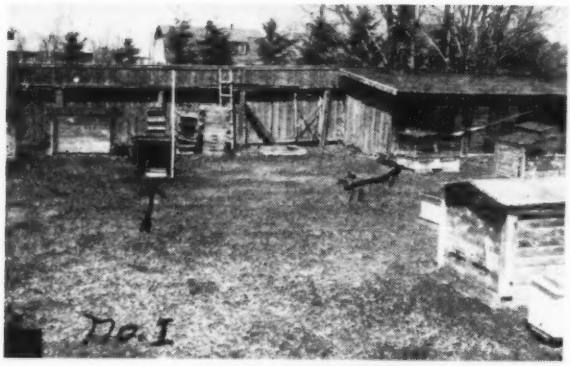
Two 6-ounce packages semi-sweet chocolate bits, one 5½-ounce package oven-popped rice cereal, and ⅔ cup honey.

Melt chocolate over hot but not boiling water. Add honey and mix well. Remove from heat. Add cereal and stir until well coated with chocolate. Press into greased pan, 10¼ x 15¼ inches. Cut into bars when cool. You may shape the mixture into bells, Christmas trees, and wreaths, placing them on heavy waxed paper. Yield: 56 bars, 1¼ x 2¼ inches.

Honey Fruit Cake

One and ¾ cups raisins, ¾ cup currants, ¼ cup chopped citron, 3 tablespoons chopped candied orange peel, ¼ cup chopped candied cherries, ⅓ cup chopped dates, ⅓ cup chopped dried figs, ½ cup shredded blanched almonds, 1 cup sifted flour, ¼ cup shortening, ½ cup honey, 2 eggs, ¼ cup sour milk, 2 tablespoons currant jelly, ¼ teaspoon salt, ¼ teaspoon baking pow-

(Continued on page 789)



Natural Protection for Bees

By M. J. Rowland
Kapuskasing, Ontario

Northern Ontario is noted for its accumulation of snow during the winter months. The accompanying illustrations indicate the height to which the snow sometimes reaches and the size of the drifts caused by trees, fences, or other obstacles.

Loose snow is an excellent protection for bees. Winter cases may be deeply buried in a snow-bank without injury to the colony, though just enough snow to nicely cover the case probably affords the best protection. The formation of ice or crust on snow at or a little above the hive entrance and preventing the penetration of air will do more harm than a great depth of loose snow. Ten rods, marked in feet and inches, are put up at equally-spaced points across the apiary during late autumn and the depth of snow is recorded each week throughout the winter season. On February 18th, the average depth at those 10 points was 33½ inches. On March 15th, it was 44½ inches.

No. 1, autumn scene after the hives of bees had been put into the winter cases. The board fence at the back is about eight feet high. The small black case with the seven-foot rod in front contains one colony in a single brood chamber hive with eight inches of insulation material and a six-inch air space above the hive, and six inches around it. The case at the corner of the shed contains two colonies. It allows the same amount of insulation above and at the sides of the hives and in

addition six inches beneath them.

No. 2, taken about mid-winter. The two-colony case and one end of the shed are completely buried. The 7½-foot stepladder is resting on the black case and leaning against the snowbank. Two short boards and a honey pail are on top of the drift.

No. 3, ten days later. All is buried. The black case is somewhere behind the two children and beneath the boy standing on top of the snowdrift. The seven-foot rod has been moved.

Nos. 4 and 5. Taken in early spring. The same area as shown in Nos. 1, 2, and 3.

The single-case colony and one of those in the two-colony case survived the winter in better condition as measured by the number of combs of bees and brood, than the average of the whole yard. The other colony in the two-story case was weak and brought the average condition of the three to one-half comb below the average at the first spring examination.

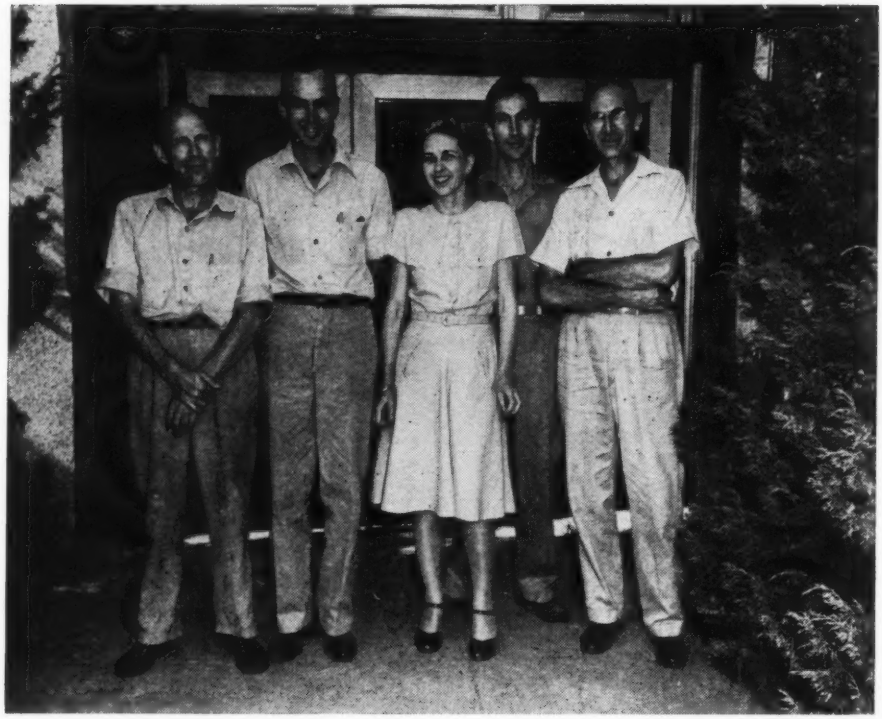
Nos. 6 and 7, winter and summer scene in the same apiary and taken from about the same position as indicated by the tree trunk and the peak of the roof. High point of the drift was 15 feet.

No. 8, a summer scene in the same yard looking toward the part shown in the other seven photos. The first five photos are scenes between the farther end of the shed and the hedge in the background. Those five pictures were taken from a point near the left-hand edge of the hedge.

These pictures are of the main apiary on the Dominion Experimental Station at Kapuskasing, Ontario. A queen-rearing yard is beyond the hedge.

Southern States Bee Culture Field Laboratory

By Warren Whitcomb, Jr.
U. S. Department of Agriculture, Agricultural Research Administration
Bureau of Entomology and Plant Quarantine*



Present staff of Southern States Bee Culture Laboratory: Everett Oertel, Otto Mackensen, Nan Warrick, Frank Robinson, and Warren Whitcomb, Jr.

The Southern States Bee Culture Field Laboratory of the Bureau of Entomology and Plant Quarantine was established at Baton Rouge, Louisiana, in 1928, in cooperation with the Louisiana State University, for the study of problems of particular importance to beekeepers in the region extending through the Southern States including Texas. Two broad phases of work were chosen — (1) package bees and queens, and (2) honey plants and honey production.

The work on package bees and queens has resulted in recommendations for shipping-cage design and for handling bees while in commercial shipment, which have been generally accepted by the industry. The increasing use of airplanes and refrigerated cars or trucks for transporting bees now necessitates additional study of both cage design and shipping methods. Recent studies on methods of management for package-bee production indicate the need for improvement of equipment, shaking methods, and manipulation of the colonies.

In the course of studies on honey plants, and honey production, data have been accumulated on the distribution and abundance of honey plants, the period and duration of the nectar flow, the sugar concentration of nectar, and the influence of soil and other environmental factors on plant growth and nectar secretion. Because of seasonal variation, data must be collected over a period of years before conclusions can be drawn. An apiary of 40 colonies in which management prac-

*In cooperation with Louisiana State University.

tices are studied has produced average crops of 110 to 260 pounds of honey more than the 50 pounds required for maintenance of the colony. Studies in localities where a single species of plant, such as tupelo, palmetto, white Dutch clover, or goldenrod, predominates have given information not only on the nature and intensity of the honey flow, but also on the management practices necessary for obtaining maximum crops.

It was realized when the station was established that breeding and stock improvement would some day be major research problems. Research concerned with breeding has therefore been carried on whenever possible. It has included the hand mating of queen bees by Harry Laidlaw, which has led to the development of artificial-insemination technique by Otto Mackensen and W. C. Roberts so that it can be used commercially. Studies of isolated mating locations, natural mating, and variations in the number of egg tubules and the size of body parts all contribute to a breeding program. Investigations of the production and the chemical and biological properties of royal jelly, the growth and development of larvae, and many problems connected with queen production have produced valuable data, much of which is yet unpublished.

Studies on the genetics of the honey bee have produced basic data on which a broad breeding program is being built. Facilities for testing breeding stock are limited, and a thorough understanding of queen rearing still awaits the development of a uniform breeding stock, so that variations due to queen-rearing management can be distinguished from variations due to stock. In cooperation with the bee culture laboratory at Laramie, Wyoming, strains of bees have been developed that are highly resistant to American foulbrood. At the Madison, Wisconsin, laboratory these and other strains are tested for their honey-producing ability.

The work recently started on Kelley's Island, in cooperation with the Honeybee Improvement Cooperative Association, is part of the breeding program through which beekeepers may obtain the stocks developed by the Southern States laboratory. With the increasing interest in stock improvement by commercial breeders and associations of beekeepers, additional emphasis will be placed on basic genetic and breeding problems which the laboratory is admirably fitted to study.

The following list of papers by present and past staff members of the laboratory includes titles which are unfamiliar to many beekeepers because they were published in journals not ordinarily read by them. Also included are a few unpublished manuscripts of general interest. The present work of the laboratory depends so much on the contributions of members now stationed elsewhere that the papers they prepared here are included in the list.

Gordon P. Dillon is the son of M. N. Dillon, well-known Michigan beekeeper. He received his M.S. degree in Chemistry from Louisiana State University in 1935. His studies on honey were made in cooperation with the laboratory.

1935. A study of the clarification of honey by the application of cataphoresis and the effects of honey clarification. Unpublished master's thesis, La. State Univ.

Harry H. Laidlaw, Jr., was the first to demonstrate successfully the hand mating of queen bees. He worked at the laboratory from 1929 to 1934 and received his B.S. and M.S. degrees from Louisiana State University. His thesis, a part of the Ph.D. requirements at the University of Wisconsin, is an outstanding contribution to our knowledge of the anatomy of the queen and drone in relation to natural and artificial mating. He is now conducting breeding experiments at the University of California at Davis.

1932. Hand mating of queen bees. Amer. Bee Jour. 72: 286.

Otto Mackensen is a graduate of Texas Agricultural and Mechanical College and of Texas University. He has been at the laboratory since 1935 and is in charge of the breeding and stock-improvement studies. His work in perfecting the instruments and technique of artificial insemination is well known. His primary interest is in genetics, and his present work on sex alleles in the honey bee promises to clarify many problems which now trouble commercial breeders. He is also responsible for the breeding phases of the disease-resistance studies at Laramie, Wyoming, of the stock-im-

provement work at Madison, Wisconsin, and of the testing and distribution set-up at Kelley's Island.

1939. American scientists interested in South African bees. S. African Bee Jour. 14: 10.

1943. Breeding and race improvement. La. Agr. Expt. Sta. Ann. Rpt. 1942-43: 136-138.

1943. The occurrence of parthenogenetic females in some strains of honeybees. Jour. Econ. Ent. 36: 465-467. (Comments in Bee World 25: 53-54.)

1944. Controlled mating. La. Agr. Expt. Sta. Ann. Rpt. 1943-44: 163-164.

1945. Artificial insemination of queen-bees (Note) La. Agr. Expt. Sta. Ann. Rpt. 1944-45: 129.

1947. Effect of carbon dioxide on initial oviposition of artificially inseminated and virgin queen bees. Jour. Econ. Ent. 4: 340-349.

1947. Bee breeding. La. Agr. Expt. Sta. Ann. Rpt. 1946-47: 121-122.

1948. A new syringe for the artificial insemination of queen bees. Amer. Bee Jour. 88: 412.

Otto Mackensen and W. C. Roberts

1948. A manual for the artificial insemination of queen bees. Bur. Ent. and Plant Quar. ET-250.

S. E. McGregor is another Texas Agricultural and Mechanical College man. He was with the laboratory from 1934 to 1939, when he left to take charge of the Division's laboratory at Hope, Arkansas. He is probably the best known to beekeepers for his outstanding work on bee poisoning, based on studies of this problem in Arizona.

1936. Studies on variation in size of appendages of the honeybee (Apis mellifica L.) as correlated with certain environmental factors. Unpublished master's thesis. La. State Univ.

1938. Environmental factors and size variations in honeybee appendages. Jour. Econ. Ent. 31: 570-573.

R. M. Melampy received his training at Haverford and Cornell. His work on physiological and biochemical phases of the growth and development of bee larvae and on royal jelly is an important contribution and merits careful study by beekeepers. He was with the laboratory from 1936 to 1941.

R. M. Melampy and K. E. Mason

1936. Absence of vitamin E in the royal jelly of bees. Proc. Soc. Expt. Biol. Med. 35: 463-469.

R. M. Melampy, E. R. Willis, and S. E. McGregor

1937. The growth and development of the female bee (Apis mellifica L). Anat. Rec. 70: 81.

R. M. Melampy and E. R. Willis

1938. Respiratory quotients of the female honeybee during larval and pupal development. Anat. Rec. 72: 45.

R. M. Melampy and C. S. McCleskey

1938. Bactericidal activity of royal jelly of the honeybee. Jour. Bact. 36: 324.

R. M. Melampy

1939. Physiology of the dimorphism in the female honeybee (Apis mellifica L.) Anat. Rec. 73: 71.

R. M. Melampy and E. R. Willis

1939. Respiratory metabolism during larval and pupal development of the female honeybee (Apis mellifica L.). Physiol. Zool. 12: 302-311.

R. M. Melampy and D. B. Jones

1939. Chemical composition and vitamin content of royal jelly. Proc. Soc. Expt. Biol. and Med. 41: 382-388.

R. M. Melampy and C. S. McCleskey

1939. Bartericidal properties of royal jelly of the honeybee. Jour. Econ. Ent. 32: 581-588.

1939. Nutritive value of various foods for the adult honeybee. Jour. Econ. Ent. 32: 721-725.

R. M. Melampy and A. J. Stanley

1940. Alleged gonadotropic effect of royal jelly. Science 91: 457-458.

R. M. Melampy, E. R. Willis, and S. E. McGregor

1940. Biochemical aspects of the differentiation of the female honeybee (Apis mellifera L.). Physiol. Zool., 13: 283-293.

R. M. Melampy

1940. Some interesting facts concerning the nutritive value of royal jelly. Amer. Bee Jour. 80: 369.

R. M. Melampy and R. D. Olsan

1940. Carbohydrate metabolism of the developing honeybee (Apis mellifera L.). Proc. Soc. Expt. Biol. and Med. 45: 754-758.

R. M. Melampy and M. E. Power

1943. Dimorphism in the female honeybee (Apis mellifera L.). Development of the metathoracic tibia. Ent. Soc. Amer. Ann. 36: 2.

Everett Oertel, who received his training at Wisconsin and Cornell, has been with the laboratory since 1928. His studies on the distribution and value of honey plants are well known. Less familiar are his studies on the weather and environmental factors that determine whether a plant will secrete nectar. Such fundamental research is slow and often discouraging, but it will result in new conceptions of the relationship between honey plants and honey crops.

1930. Metamorphosis in the honeybee. Jour. Morph. and Physiol. 50 (2): 295-332.

1931. Hydrogen-ion concentration of soils and its relation to the importance of white clover as a honey plant. Jour. Econ. Ent. 24: 627-632.

1933. Effect of weather upon colony gains in weight during goldenrod honey flows. V. Cong. Internatl. d'Ent., II Trav. 914 pp. Paris.

1934. Variation in the number of egg tubules in the queen bee. Jour. Econ. Ent. 27: 1111-1118.

1934. White clover and honeybees in Louisiana. Gleanings Bee Cult. 62: 462-464.

1937. Honey flow from palmetto in Louisiana. Beekeepers' Item, 21: 218-226.

1937. Weather affects nectar secretion. Gleanings Bee Cult. 61: 406-408.

1939. Honey and pollen plants of the United States. U. S. Dept. Agr. Cir. 554.

1940. Mating flights of queen bees. Gleanings Bee Cult. 68: 292-293.

1940. The beginner beekeeper in Louisiana. A discussion of the natural history, management, and diseases of the honey-

bee. La. State Dept. of Agr. and Immigra. (Rev. 1947.)

1943. White clover seed and honeybees. Progress through agricultural research. La. Agr. Expt. Sta. Ann. Rpt. 1942-43: 135-136, tables.

1944. Scale colonies and honey production. La. Agr. Expt. Sta. Ann. Rpt. 1943-44: 162-163, table.

1944. Variation in the sugar concentration of some southern nectars. Jour. Econ. Ent. 37: 525-527.

1945. Historical notes on honeybees and beekeeping in Louisiana and other southern states. Proc. La. Acad. Sci. 9: 71-76.

1947. Size of honey crop affected by queen bee supersedure. La. Agr. Expt. Sta. Ann. Rpt. 1946-47: 121.

1948. The importance of brood rearing on honey production in Louisiana. Amer. Bee Jour. 88: 74-75.

W. C. Roberts is a Louisianian who received his B.S. and M.S. degrees from Louisiana State University. He has been closely associated with Dr. Mackensen in the development of instruments and techniques for artificial insemination of queen bees. His work, together with preliminary studies by Dr. Oertel, proved conclusively that queens ordinarily mate more than once. He is now in charge of the testing and distribution work at Kelley's Island, which forms an important segment of the breeding and stock-improvement program of the laboratory.

1937. The effect of subnormal temperatures on queen bees (Apis mellifica L.). Unpublished master's thesis, La. State Univ.

1944. Multiple mating of queen bees. Gleanings Bee Cult. 72: 252-259.

Warren Whitcomb, Jr., was born in New Hampshire and received his training under J. R. Hepler at the University of New Hampshire, and H. F. Wilson at the University of Wisconsin. He has been in charge of the laboratory since it was established in 1928. Research time has been largely devoted to package-bee production and shipping, and to studies on wax moth control.

1930. Tendencies in the package bee industry. Beekeepers' Item 14: 2, 49-51.

1931. Recommendations for shipping cages for bees. U. S. Bur. Ent. and Plant Quar. E-287 (Rev. 1935.)

1933. Locality differences in relation to the package bee industry. Amer. Bee Jour. 73: 7.

1935. The shipping of package bees. U. S. Bur. Ent. and Plant Quar. E-363.

1935. A stand for the photographic reproduction of printed pages. U. S. Bur. Ent. and Plant Quar. ET-38.

1935. The crating of packages of bees. Amer. Bee Jour. 75: 62.

1936. The wax moth and its control. U. S. Dept. Agr. Cir. 386. (Rev. 1942.)

1943. Package bee production. Progress through agricultural research. La. Agr. Expt. Sta. Ann. Rpt. 1942-43: 134-135.

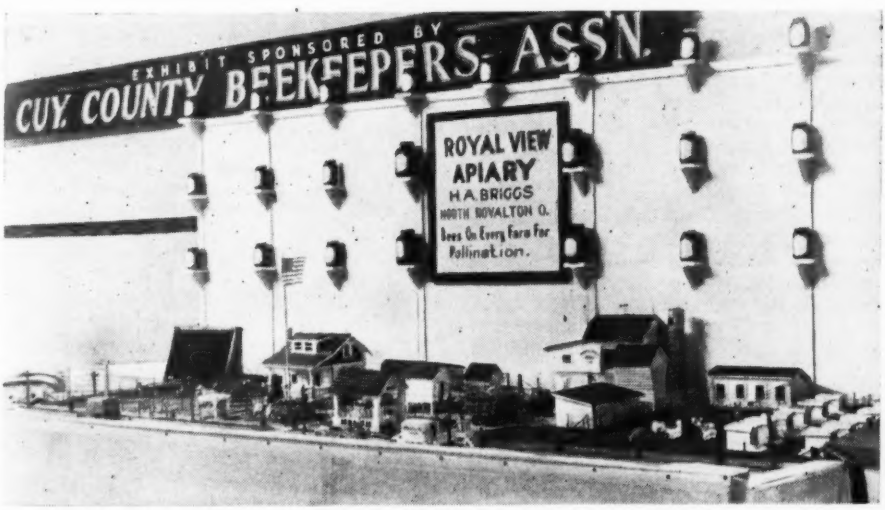
1944. Pollen-trap records and pollination. La. Agr. Expt. Sta. Ann. Rpt. 1943-44.: 161-162.

1946. Feeding bees for comb production. Gleanings Bee Cult. 74: 198-202, 247, tables.

1947. Wax moth damage in Louisiana. La. Agr. Expt. Sta. Ann. Rpt. 1946-47: 120-121.

W. Whitcomb, Jr., and E. Oertel

1938. A report on supersedure of queens reared under controlled conditions which were shipped to cooperators during 1938. (Mimeographed for cooperators only.)



An unusual display of H. A. Briggs of North Royalton, Ohio. It shows the layout of a back yard apiary.

Chunk Comb Finding Ready and Eager Market

By C. J. Hudson, Jr., Atlanta, Georgia

Chunk honey can present a beautiful appearance

Not many years ago honey consumers throughout the United States were confronted with a rather one-sided market of extracted honey packed in various styles of containers. There was also the section comb pack that found a ready market, but the production was nearly always short of demand. Yet, there still persisted the demand for honey in the comb of some sort, so southern producers began to experiment with the modification of these two earlier packs—the chunk comb pack. So great was the consumer acceptance of this new and pleasing-to-the-eye pack that the chunk comb industry has grown by leaps and bounds.

Through most of the earlier periods of chunk comb packing, beekeepers complained that market prices on this and extracted packs were on the same basis. When OPA went into effect, this condition still persisted until toward the end of OPA price controls. Then, southern producers made a definite demand for a higher price index on chunk comb packs because of the extra labor involved in putting up such packs. This increase was granted by the U. S. Government. It was a forerunner of a definitely established premium price for all chunk comb packs which is still in force today.

In the early period of chunk comb packs, producers of section comb honey predicted that this new industry would suffer the same decline as the section comb market. Others who packed extracted honey learned to their sorrow that not all types of honey could be used in chunk comb packs because of the rapid granulation when comb and extracted honey were combined. These people also predicted a rather limited market for chunk comb packs. The South, however, continued to improve their methods to make neater, more attractive chunk comb packs. Beekeepers and packers there demanded the production of a square, wide-mouthed jar into which the comb could most easily be placed, and also which would display the comb to the best advantage.

This new jar skyrocketed the chunk comb business. Buyers from New York, Philadelphia, Chicago, and everywhere where fancy honey packs were sold bought increasingly larger amounts of chunk comb honey packs. The demand kept growing until southern beekeepers began to change their production from extracted to nearly 100 percent chunk

comb packs. It is now a common thing to hear a large producer say that his entire crop of chunk comb honey has been contracted for before it is even harvested. This year, while extracted gallberry or orange blossom honey supplies are still available, the chunk comb packs have been sold out long ago — at a premium price. Beekeepers throughout the South are changing rapidly from extracted to chunk comb packs. This trend is not noticed only in the South, but Mid-western and Eastern producers are also showing a decided interest in this newer pack.

There are some limitations and problems involved in the chunk comb pack. One of these has already been mentioned — that of granulation. However, clover honey packers simply overcome this condition by planning a little more wisely. They keep their chunk comb packs moving faster on grocers' shelves than do the extracted packs. This will not permit the comb honey to stay on the shelves long enough to granulate. It also means that there will have to be a little education among chunk comb buyers to inform them that these packs must move faster from their shelves when clover chunk comb packs are bought. Now that the demand has grown so much for this pack, the problem is not nearly as important as it has been in the past.

While gallberry honey will probably continue to hold the market as a chunk comb honey because of non-granulation, there are other southern honey flavors that must be handled much like the clover honey as far as rapid turnover is concerned. This invites a rather poor practice of combining different types in the comb and liquid combination in an effort to use slow granulation extracted honey in these packs. Some of these combinations do not result in the highest quality flavor.

As soon as a new product becomes very popular on the market, there are some people who always try to market inferior products of similar nature for the same premium price. This has been and is happening in the newer chunk comb industry, and efforts should be made to curb such malpractice. To explain the situation better it might be best to first state the requirements of a perfect chunk comb pack. First, there should be 40 percent or more comb in the jar—the rest of the space to be filled with extracted honey. Second, the comb used should be 90 percent or more capped, should be free of travel stain, should have clean cappings, and the entire comb should be bright and clean and of even thickness. Third, the comb should be well anchored in the jar so that there will be no floating comb. Fourth, the extracted honey should be clear and free of all foreign matter. When a jar is packed under such requirements it will make a beautiful, attractive pack. In fact, some packers make a special effort to make extra fancy packs by cutting and placing the comb in patterns to make a truly perfect product that is bound to sell even at a premium price.

There are some who try to capitalize on the new chunk comb market by using old, dark brood comb, poorly-capped comb, and by using only small pieces of comb from the size of a walnut up to slender single strips. These packs are decidedly inferior, while the packers try to sell them at the same premium price of a well-packed jar. Such a practice should be discouraged, and should be controlled by national grading standards. I have experimented some in selling chunk comb honey at retail at various price levels according to the quality of the pack. Buyers will invariably buy the best packs at a higher price rather than pay a lower rate for a poorly-packed jar. Therefore, the basis for grading is sound when such a pack is concerned It will surely tend to eliminate the many vastly inferior products that are now being sold for the same prices as the best grades.

Chunk comb honey packs are definitely here to stay, and will continue to increase in popularity as producers give more attention to quality packs. The square wide-mouth jar, too, will be a standard container for these packs. Glass manufacturers have cooperated with the chunk comb packers by improving the jars to give maximum efficiency in displaying well-placed comb. There is a real future in this new pack for all producers.

From the Field of Experience

Dry Weather in New England Stymies Honey Yield

By Edward F. Perreault, Holyoke, Massachusetts

New England honey production for 1949 is estimated at 1,433,00 pounds as compared with 1,739,000 pounds in 1948, a reduction of 18 percent. In 1947 honey production totaled 2,039,000 pounds. A reduction in the quantity of honey produced this year occurred in spite of an increase in number of bee colonies from 63,000 in 1948 to 72,000 in 1949.

The yield of honey per colony was very low this year, averaging 19.9 pounds in contrast with an average yield of 27.6 pounds in 1948 and 31.4 pounds in 1947. Honey stocks for sale held by New England producers September 15 were estimated at 705,000 pounds, 11 percent less than the 790,000 pounds a year earlier.

The 1949 season started very favorably with above-normal spring temperatures and plenty of sunny weather. A good honey flow was obtained from apple and other fruit blossoms. The extended summer drouth seriously affected the growth of nectar-producing plants and honey production was at a standstill in most of New England for two months. Rains started in late August and extending through September were beneficial to late nectar producing plants. A limited flow of fall honey was reported for this period mostly from goldenrod.

Piano Box Storage

By Irene Craig Neal, Ottawa, Ontario

We wintered our bees very successfully by the use of piano boxes. We obtained these from a local furniture company at a very reasonable price.

Each box will hold four hives conveniently. Our Canadian climate is very severe at times with a great deal of snow, and the bees need some extra protection, especially since our winters are long.

The piano boxes were elevated slightly from the ground, depending on whether they were located on high or low land. If drainage in the area was not good, we raised them quite high to avoid rotting the bottoms of the boxes.

They should be made waterproof. We found tar-paper tacked over the top worked quite successfully.

For insulation we used wood shavings which we bought from a lumber yard. Do not use sawdust because of the dust. We put six inches of shavings in the bottom, four inches between the hives and the sides of the box and then another six inches on top.

The bees wintered comfortably in sub-zero weather with this amount of insulation.

Hurrah for British Columbia!

Now is the season to gather stories of tall hives. We have one this year that went over 500 pounds, several with well over 300 pounds. Has it ever occurred to some of you that we still have a lot to learn of bees and beekeeping? If one colony in a location puts up 500 pounds surplus, why do the rest in the same location do no better than 150 pounds? It is most gratifying this year to hear of better beekeeping methods all over B. C. from Hudson's Hope on the upper Peace River to Vancouver Island. Better beekeeping methods mean more honey, and more B. C. honey means more honey kept at home and more honey kept at home means more for you and me, so we should all be interested.—Provincial Apiarists, Vernon, B. C.

Bees Packed in Minnesota

By Frank Finn, Mankato, Minnesota

The two illustrations show how I wrap my bees for winter as well as the cornstalk windbreak. I use the top entrance with plenty of straw on top but no cover. I have one yard I packed in straw all around, and one I used just tar paper, with straw on the top with the top entrance. With so much snow we have to have a top entrance up here. We don't see some of our yards all winter.

Honey Promotion Thoughts

By David I. Day, Dale, Indiana

After traveling over Indiana for some 14 years, devoting a large part of the time to seeking interesting farm copy for a daily newspaper (The Indianapolis Star), I finally tumbled to the fact that there are **fashions in food.** For some reason, the honey producers in many quarters have permitted their stock in trade to become **unfashionable.**

From the age of four to forty particularly, a good many folks have volunteered the information that they "don't care for honey". The tone of voice usually indicates they think it is some outdated sweet. They respond much in the same vein as if you asked how they would like to purchase a good buggy horse.

We believe now that the first job of the nation's beekeepers is to make honey popular with the kids. Not as a health food or to "save their teeth" but simply because it is the finest confection on earth, the best sweet to be obtainable at any price. Some have already taken this cue. We see them making a special effort to sell school teachers, to interest home economics teachers especially.

One beekeeper last year had a neat comb honey display at the county meeting of the domestic science clubs. It made a hit. He has sold a lot of honey thereby. But more important he has made one step toward making honey fashionable in his locality. When honey is a "must" in the best homes, the other homes will call for it, the next generation if not this one.

When popular "key kids" in the school say: "I like honey, the best of anything nearly; have it for breakfast every day," it is only a matter of hours until mothers in other homes will hear: "Why don't we ever have honey. Over at Clarice's house and at Joe's too—they eat honey every breakfast."

We are inclined to believe that the five best starting methods in many places are as described below. However, the county or district beekeepers' associations might consider them. Some might be replaced by others here unmentioned, due to local circumstances of some sort.

It is suggested that all the beekeepers of the county chip in and buy space in the county newspapers. Just enough to keep housewives reminded that honey is still being made by the local bees. **A few folks have the idea that all the present-day honey is an artificial imitation. One fellow in a grocery store said in my presence: "Bees used to get honey for us from the flowers. Now it comes from glucose molasses. Beekeepers buy it by the barrel."**

Maybe the best plan is to leave enough in the hives for the bees **to winter on any year.** Then you can advertise: "All My Honey Comes From the Flowers"—and be in a position to prove 99 percent of that statement. Once convinced that they actually get "flower honey" the prospective customer will read the formulas. If you buy space, the rural editor will run a few honey recipes weekly as a matter of informative news.

Never let a county fair or a farmers' institute get by without a honey display and the distribution of honey recipes.

Have **a good telephone.** Nothing kills telephone sales like a rural line down on the fence posts. These are the three main divisions of a local honey promotion, aside from working the schools for all they are worth or will stand. Add to this, care in the appearance of home and apiary. One lady told me recently: "I liked Blank's honey until I visited his farm. That 'cooked' me!"

And, finally, Brethern — be not above a little peddling. The Indiana communities with the largest per-capita consumption of honey are those with fellows eager to distribute from door to door.

1949 Gleanings Index

The index for 1949 Gleanings in Bee Culture is printed in leaflet form. We shall be glad to send it to anyone asking for a copy.

Price Support for Honey

Price support for honey has become a certainty for the President has signed the Bill making it mandatory to support the price from 60 to 90 percent of parity. At this writing, decisions have not been made concerning the details of the program. The Federation is urging the Department of Agriculture to make such announcement as soon as possible. This announcement will not come until after a conference with a representative group from the beekeeping industry. Plans for this conference have not been announced.

The Anderson Bill is a permanent law for farm price support, but it will be permanent only to the extent that some other legislation does not replace or change it on the statutes of our Nation. We are informed that Senator Thomas, Chairman of the Senate Committee on Agriculture and Forestry, has made the statement that he will not permit any general farm legislation to come before his committee in 1950. This could mean that honey will receive price support for at least two years. On the other hand we are told that the Brannan program will be political ammunition in the 1950 elections. If the Brannan program is adopted and if—**a very important if**—our price support program is successful to the extent that the industry is benefited and the Government does not acquire too great a quantity of honey, we might assume that we would be granted price support under the Brannan program, although this would likely be at the discretion of the Secretary. But no one can know how long honey will be given price support.

What is the price support program going to be like?

Frankly, we do not know nor did officials in Washington the week of October 24. The law specifies: The price of honey shall be supported through loans, purchases, or other operations at a level not in excess of 90 per centum nor less than 60 per centum of the parity price therefor.

We are informed that parity for honey as of October 15, 1949, was 16.8 cents a pound. The percentage level of price support will be decided by the Secretary of Agriculture and his decision will be final although certain provisions of the law apply. Most officials with whom we talked did not think we could hope for more than 60 percent of parity or 10.08 cents a pound.

The law states further: Appropriate adjustments may be made in the support price for any commodity for differences in grade, type, staple, quality, location, and other factors. Such adjustments shall, so far as practicable, be made in such a manner that the average support price will equal the level of support determined as provided in this Act.

The price history for honey would indicate that certain differentials of this kind would be in line, due to freight rates, grade and/or color of honey. If the Secretary establishes varying price levels due to such differentials, the average support price must equal the support level determined by the Act.

Further, it is not known whether the Secretary will elect to give price support to the 1949 carry-over, as of January 1, 1950, or only to the 1950 crop. It is our information that this decision will be made relative to wool, mohair, tung nuts, and honey, as a group of commodities. Pressure is being used to induce the Secretary to give price support to the 1949 carry-over, but until final details of the program are announced, no one can know what the decision will be.

The law states further: The Secretary shall, insofar as practicable, announce the level of support in advance of the beginning of the marketing year or season (January 1 in the case of commodities not marketed on a marketing year or seasonal basis.) The interpretation as applied to the honey industry has not been made.

What does price support mean to the honey industry?

First, price support means recognition for our industry like that given to other agricultural commodities. Such recognition should be reflected in increased interest on the part of the Government and others in our problems of marketing, research, pollination, organization, and others.

Second, price support brings to the honey industry for the first time

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A Talk to Beekeepers

By M. J. Deyell

I can well recall, when a boy, looking forward to 1950 and wondering how it would feel to be alive when that year arrived. Well, here we are almost on the fringe of the half-century mark. We live a day at a time, then a week, a month, and before we realize it the time has come to hang up a new calendar. Now, incidentally, we are growing a little older, in point of years at least, but there is nothing we can do about the years part of it. We can, however, keep young in spirit.

It is heartening to meet a beekeeper who has passed the three score and ten mark and still retains his youthful outlook on life and does not get in a rut with respect to beekeeping developments.

I am not saying or implying that we have to take up with every fad that comes along, but at least we should be open-minded enough to give these new ideas, fads, or developments (call them what you may) due consideration. In some instances, what we thought were new ideas are not new. Some of them were tried out over 50 years ago. If we take time to browse through the beekeeping literature of the past we will realize that there is practically nothing new under the sun.

As I get around to beekeepers' meetings over the country, occasionally I will meet a beekeeper who thinks he has discovered something in equipment or hive manipulation that has never been brought out. Most of these beekeepers have in mind getting a patent on their ideas. When I tell him that the idea he has is not new, but was tried out about 50 years ago, he is usually amazed and unwilling to believe it until I have referred him to the exact volume and page of the bee journal in which the idea is described.

This should not discourage beekeepers from developing simpler and more time-saving methods in hive manipulation or apiary management. We are still doing things in the apiary which we think should be done, when as a matter of fact, some of the manipulations may not be absolutely necessary. On the other hand, we may be omitting other necessary manipulations which, if done at the proper time, might result in larger crops of honey.

M. J. Deyell

It is a fact that we have made some progress in beekeeping during the past 50 years even though this so-called progress has been painfully slow. It is interesting to speculate on what may happen in our industry during the next half-century. Time will tell.

Will Thick Honey Granulate in Combs this Winter?

It is November 9. I am getting this talk written early this month before attending a bee meeting. Just a few days ago I finished extracting the fall crop of honey. We had the most remarkable fall flow around Medina that we have had for a number of years. It began in late September and continued until October 10.

The weather was quite warm and consequently the bees had an opportunity to cure the honey properly. The other day we got a sample of this fall honey from the tank and measured the moisture content and found it to be slightly over 16 percent. This is the thickest fall honey we have ever seen. The honey is so thick that the balloon in the bottle rises very slowly. The flavor is delicious and not like some fall honeys.

However, we have discovered that this honey granulates quite rapidly. We dare not leave it in

the tank too long before drawing it off into containers.

An Embarrassing Situation

Some years ago I extracted some of my fall honey and left it in a large tank, thinking I would draw it off into cans in a day or so. I had to go away on a trip for a week and when I got back and examined the honey in the tank it had granulated solidly. Did I have some fun getting this honey out of the bottom of the tank! I had to take a spade and dig the honey out of the bottom of the tank which was laid on its side. The honey was put into open-top cans to liquefy. Never again—I hope.

I have wondered if this honey which constitutes the major portion of the winter stores for bees will granulate during the winter months, and if it does, will it be detrimental to the bees? The kind of weather we have this coming winter may have a bearing on what may happen. If the bees are kept in their hives for long periods and they are not able to take periodic cleansing flights, wintering may not be so good.

Some beekeepers of the North still follow the method of feeding each colony one or more 10-pound pails of thick sugar syrup late in the fall, this syrup being stored in the cells of the brood chamber where the last bees emerged. This appears to have some value.

However, in this area I do not see how such syrup feeding could be done without removing two or three frames of honey from the center of each brood chamber to make room for the syrup. Most of the brood chambers were completely filled with late-gathered honey during late October when winter feeding is usually done.

The Fate of the Drones

Just recently I happened to see what I have read about—namely, drones being driven into one corner or side of the hive when cool weather comes. We had an observation hive showing all sides and the tops of the frames in the brood chamber. Of course, wooden panels cover such a hive except when one is observing the bees inside. One day I removed the side panel and saw about 50 drones huddled together between the wall of the hive and the outside comb. It was a pitiful sight. Later on these drones were likely led out of the entrance and thrown onto the alighting board to

(Continued on page 789)

An apiary in Sweden with bees well protected against the cold winter.—Photo from Gustav R. Anderson, Fagerborg, Hokedalen, Sweden.

Second Glances

By C. M. Isaacson

Gift packs of honey should be excellent as Christmas remembrances (page 673). And for those trying it for the first time, Mr. Tontz' article is well worth a second glance — his experience, given as it is, should be a big help in properly packing a shipment. That screw-top can should be excellent, and using extra-size cases for jar shipment certainly seems a good idea. And, of course, prepare a **good** pack, whether it is to be sold or given. That is essential.

Honey bees can relocate themselves very quickly (page 675). Many of us could relate experiences similar to that taken from A. L. Gregg's book. I have seen bees coming in with nectar and pollen within an hour after being released in a new location. We do have much to learn as to the why of bee behavior.

The value of packing for winter depends on locality, Editor Deyell concludes in the article beginning on page 675. I believe this about expresses things. Here we pack because we have found it doesn't pay not to—it saves both honey and bees. In other localities of less extremes, it may not be profitable. We do use a pack which cuts to a minimum the labor required, though, and yet has proved worthwhile for the bees. That would be essential in these days of lower honey prices. For instance, we pack in pairs, not singly, put no packing material in front (consequently no tunnel), use a single strip entrance, and metal covers on top of pack.

Central wax salvage plants, properly run, should fit in very well with the careful inspection and sulfa treatment in keeping disease under control. Careful supervision and strict regulation of licensed operators should insure that they are properly run. With both equipment and wax being salvaged, beekeepers should be more willing to cooperate in control programs. The whole plan is worth careful study by other states (page 680).

The merits — and demerits — of Caucasian bees are ably discussed by the Jessups (page 682). **Pure-bred** Caucasians are gentler, they winter well, are good workers, and do cap honey very nicely. They do propolize considerably, not only entrances, but all inside parts of a hive. They are extremely hard to secure or keep a pure strain, and they decidedly have a greater swarming tendency than Italians —although in our experience this can be controlled. In springs with little nectar coming in, however, I believe Italians will build up faster, as queens will lay "in and out of season" (an objection when fall comes, and in favor of Caucasians). All in all, good crops can be produced with either race—it is largely a matter of individual choice.

Supplemental heat would be somewhat impractical with the outapiary system practiced so generally nowadays—too many yards would be beyond any reachable source of electric power. So if it is not wise to pack a small colony, the answer must be one we have found through experience — winter only strong ones, with plenty of honey. That concluding sentence of Mr. Sechrist certainly is beyond argument though —"we must keep bees better". If we are to survive times that may well lie ahead, we must do just that (page 685).

That comparison of various honey flavors is difficult is certainly true (page 688). They are" originals", and while long experience may enable some to differentiate between honeys from various sources, it still is hard to say a certain kind is like any definite flavoring. That should be one of our big selling points for our product—its flavors are its own —not synthetic, and impossible to really copy.

The Pfund honey grader has surely made it much easier for the beekeeper to sell his honey and know he is getting a fair evaluation of it. It furnishes a reasonably accurate standard for the whole country and if flavor and body are also taken into account, a fair one. Taste, of course, cannot be graded, as Mr. Paisley rightly remarks, but many different flavors can find favor in different markets. Honest grading and description will prove best for us all (page 696).

Thief River Falls, Minn.

American Honey Institute News Notes

By Harriett M. Grace, Director
Commercial State Bank Building
Madison 3, Wisconsin

At this, the most beautiful time of year, we at the Institute would like to do more than wish you a Merry Christmas and let it go at that. We would like to season this message to you with the same good will that you so generously bestow upon the Institute throughout the entire year.

Now as Christmas Eve draws near we sense a lightheartedness, a cheer that is seldom present in everyday life. We are fully aware of the power of Christmas, the magical way it has of drawing goodness out of the hearts of men and laying it bare for the whole world to see and enjoy.

But we are too optimistic to believe this goodness is present in man only at Christmas time. We can be optimistic for we have proof of our convictions.

Locked up in our ledger books are the names of beekeepers from all over the country who contribute to the American Honey Institute. Such a simple act as this denotes a sincere feeling for fellowship among men.

A man could sell his own honey and let it go at that. But when a man sits down to think about the honey market as a whole, how the other guy is going to sell this crop—then he has caught the essence of "good will among men".

It is our good fortune to watch this good will among beekeepers grow with each passing day. We thrill with its progress.

We only wish that every man who lost his confidence in the ability of mankind to get along with his neighbor could turn to our ledger books, note the many entries, read the letters that accompany contributions—letters that are written in the utmost of sincerity and hope. It is a source of encouragement to us throughout the year to know that so many men, each an individual, each a private businessman, can have the interest of so many at heart.

If, in the coming year, just a few more men can be convinced of the beauty of working hand in hand with others toward a common goal, then a lot shall have been accomplished. The beekeeping industry shall flourish.

We are happy to be the focal point for promotional activities that beekeepers choose to do together. We recognize our responsibility to you as an individual but also to the honey industry as a unit. We trust that in the future you shall continue to have as much faith in us as we have in you.

It shall be a happy, merry, joyous Christmas for the majority of beekeepers; we are glad of that. We would like to make it just a wee bit happier by thanking our friends, our supporters for their sincere cooperation, by pledging our services in return.

It is comforting indeed to have such faith in the people of the honey industry as to know they will keep the spirit of Christmas alive throughout the year.

Gene Cutts of Florida, and his family. The picture was taken at the meeting on Kelley's Island in August.

Asked and Answered

Putting Unripe Honey Back into Hives

Question: Last year I extracted some honey from my apiary before it was fully ripened. As a consequence a number of the jars of honey showed fermentation with souring. Could this honey be used to feed back to the bees this coming spring and thus, as it were, let them reprocess it and make it fit for human consumption? There is no evidence of any disease in the apiary and I am not worried about spreading any disease from using this honey.—Dr. Francis C. Shaw (M. D.) N. Y.

Answer: Regarding your partially fermented honey, you may do one of two things with this honey: **First,** you may heat it to a temperature of 160 degrees F., leaving it at that temperature for 20 or 30 minutes. A liquid thermometer should be used to measure the temperature. The can containing the honey should be placed in a boiler of water over a hot plate. The can should rest on a couple of small sticks so that the water can circulate around the bottom of the can. The honey in the can should be stirred occasionally as it is being heated. The heating drives off the excess moisture in the honey and also destroys any yeasts which cause fermentation. The honey is then suitable for table use. This heating does what the bees did not have a chance to do in the hive before the honey was removed. The chances are that the honey was taken off before it was properly ripened. **Second,** after the honey is liquefied, it may be used next spring for bee food. Mix the honey with water—75 percent honey and 25 percent water—and feed as you would sugar syrup. Such a mixture should be given to the bees late in the evening to avoid stirring them up too much, especially if there is no honey flow on.

Proper Temperature for Extracting Room

Question: What is the proper temperature for an extracting plant?—Arthur D. Rice, Wash.

Answer: The proper temperature for an extracting room should run somewhere between 75 and 85 degrees F. 80 degrees is a good temperature to maintain. When extracting is done in a warm temperature the honey can be thrown out of the comb quite readily. However, if the temperature is below 70 degrees the honey will not come out of the comb easily, especially if it is thick. It is usually necessary to maintain artificial heat in a honey extracting room, especially during the fall of the year when the nights are cool.

Bees Build Burr Comb

Question: As a novice beekeeper starting with one colony I have been following the food chamber method set forth in bee publications. I ran into one difficulty which I do not find discussed. The bees persisted in building comb through the queen excluder, from brood nest to food chamber, even though they seemed to have plenty of room in the supers. Can you tell me why they do this and how to prevent it?—D. A. Lemson, Calif.

Answer: In using the food chamber, by leaving the excluder off the hive at the beginning of the main flow until the bees get started to store honey in the supers above, you will find that the bees are not likely to build burr comb around the wires of the excluder. Sometimes, during a slow honey flow, bees may not enter supers readily. However, during a rapid honey flow, the bees will go up into the supers quite readily and, as already stated, are not likely to build burr comb in the excluder — provided it is properly made with correct bee spacing.

Leaving Honey in a Brood Chamber for Bee Food Next Spring

Question: I have two hives of bees from which I killed off the bees a few days ago. I have extracted the honey in the supers but since my extractor (home made) does not work well on the combs from the brood chamber, I intended to leave them as they are expecting the bees to use the honey next spring. Since there is plenty of honey I thought I could use package bees early. However, another beekeeper tells me this won't work as the bees will destroy the comb in getting at the sugared honey. Where would it be less liable to sugar? In the basement or outside?—Rev. Carl G. Berg, Minn.

Answer: Since you have killed off your bees and intend to start new colonies from packages installed next spring, the honey you are saving should be stored in a room that is not too cold, preferably of living room temperature. Even though the honey does granulate to some extent, the bees will utilize it next spring, especially when the weather turns warm. The heat of the hives will gradually liquefy the crystallized honey. A number of

beekeepers in your state kill off their bees in the fall, extracting most of the honey except the honey in the brood chamber, then start from package bees with young queens the next spring. For your latitude this appears to be a sensible procedure because in some parts of your state it is difficult to winter bees successfully out of doors.

Difference Between a Package and a Nucleus

Question: What is the difference between a "package" of bees and a "nucleus" of bees?—R. G. Tolkmitt, Calif.

Answer: The difference between a package of bees and a nucleus may not be well understood by all beekeepers. A package of bees consists of bees shaken into a bee-shipping cage, the number of bees depending on the size of the package. The two and three pound sizes are most common. We used to call this type of package a combless package of bees. A nucleus consists of two or three combs containing brood and adhering bees, placed in a box made especially to hold such frames. Ventilation is provided at the bottom and at the top. The queen is usually permitted to mingle with the bees in the nucleus, whereas in the case of the combless package the queen is usually caged safely among the bees and then released or introduced when the bees are put into a hive. There are a few shippers who furnish combs of brood with some extra pounds of bees shaken into the nucleus shipping box. This type of shipping as well as the regular nucleus is not very common now, as some of the states prohibit the entrance of bees on combs. At one time we furnished bees in nuclei but for some years we have been furnishing only combless packages.

How to Get Bees from the Siding of a Building

Question: How can I get a swarm from between the sidings of my house? Is it too late now (September 9) to do this?—Fred Harmon, N. Y.

Answer: The easiest way is to remove some of the siding of the building, but if this is impractical a bee escape may be placed over the entrance leading to the bees. The bee escape allows the bees to pass out but will prevent them from returning. If a hive containing combs is arranged close to the opening on the outside, practically all the bees may be secured in this way except the queen. If brood is at hand it would also be an advantage to put a frame with unsealed brood with enough bees to cover it, into the hive. These bees will probably raise themselves a queen from the brood given them, but it would be much better to introduce a laying queen. In the course of about six weeks most of the bees will be in the new hive. There will be some brood and the queen left in the enclosure in the building. These may be killed by putting a tablespoon of Cyanogas in the nozzle of a bee smoker and blowing it into the opening leading to the bees. It is advisable for inmates of the dwelling house to vacate temporarily until the gas fumes have passed off. Some of the fumes might seep through the crevices of the walls and be fatal to those inside. After a few days the bee escape may be removed and the bees in the hive allowed to rob out the honey within the enclosure. After the bees and the honey are in the new hive, it can be removed late in the evening. It should be located a mile and a half—or better, two miles—away. Should the hive be moved only a short distance, most of the bees will return to the old location. If it is not practical to move the bees a distance away, the hive may be moved a few feet two or three times a week until it is the desired distance from the enclosure. If moved too great a distance at one time, the bees will invariably go back to their old location. After the bees are out of the enclosure, the hole should be covered with a piece of tin. It is preferable to wait until next season at the beginning of the main honey flow to do the transferring.

Transferring Bees to New Hives

Question: I was given two hives of bees that are not in standard hives. The hives they are in are in terrible shape. I am afraid the bees can't pull through the winter. There are cracks in the hives as large as one-half inch wide that the bees can get out of. I bought two new hives to put the bees in new homes, but I don't know how to go about it. Would you help me?—Wm. F. Bressler, Ohio.

Answer: Regarding the two colonies of bees which occupy hives that are not standard in dimensions, our suggestion is that you leave the bees in these hives until the beginning of the main honey flow in your lo-

(Continued on page 791)

Editorials

Sessions for Beginners at Bee Meetings It is heartening to know that some of our state beekeepers' associations are beginning to consider the needs of beginner beekeepers and are setting aside sessions or parts of days during a meeting for a program devoted especially to beginners. It is not uncommon to attend a state or county bee meeting where all of the program is above the heads of those who are interested in bees or are just beginning to keep bees. Not long ago we attended a bee meeting where practically all of the speakers dwelt on scientific and technical topics entirely outside the grasp of "raw" beginners. It seemed obvious that those present who had become interested in bees and desired some beekeeping information, did not get it and perhaps would not attend another such meeting.

As we attend bee meetings here and there over the country there is an apparent dearth of young beekeepers who should take the places of older ones who are gradually passing off the stage. For the future of our industry we must devote more time and effort to educating beeginner beekeepers some of whom may some day become successful commercial producers.

Do We Really Believe in Honey? At a recent state bee meeting one of the speakers raised the above question and it would appear, from the evidence produced by the speaker and the discussion that followed, that the question cannot be answered in the affirmative.

Some beekeepers do not have honey on their tables regularly. Others who perhaps do eat honey at home do not ask for it at hotels and restaurants when away from home.

It has been said frequently that the per-capita consumption of honey in U.S.A is between one and two pounds. This appears to be a fact based on available statistics. However, as brought out at the recent bee meeting referred to, comparatively few people eat honey. If each of us would take time to make a canvass of homes on our street to see how many use honey, we would find very few.

Some time ago we referred to a family of eight who used 360 pounds of honey each year. If all beekeepers in this country (and there are supposed to be about 600,000) used that amount of honey, there would be little or none left to sell. Multiply 600,000 by 360. The honey crop for 1949 is estimated at about 229,000,000 pounds.

It would pay each beekeeper to obtain copies of the booklet HONEY put out by the American Honey Institute at Madison, Wisconsin, and read it carefully. This booklet has been endorsed by the American Medical Association's Council on Foods and Nutrition.

Here are a few statements appearing in the book: Honey is the oldest sweet, is valuable as a food, produces energy, puts no tax upon digestive system, contains vitamins, contains minerals, is suitable for infant feeding, and has more carbohydrates than the same amount of sugar.

If we beekeepers do not really believe in honey, how can we expect others to believe in it?

Lorain County (Ohio) Beekeepers' Association It is one thing to start an organization and still another to keep it going. The Lorain County Association was started in 1919 and has met each month during the 30 years without missing a single meeting. How many beekeepers' associations, county or state, can match this record? These beekeepers meet at different homes each month and stress the social part of their program. They always have a Christmas party at the December meeting.

On November 12 the Lorain County beekeepers held their annual banquet in Wellington, Ohio, with around 150 present. A very enjoyable occasion was had by all.

Our industry needs more live county beekeepers' associations throughout the country. Such associations are part of the backbone of our industry.

Congratulations to Lorain County beekeepers! Keep up the good work.

The Biloxi National Meeting Those who have visited Biloxi, Mississippi, on the Gulf of Mexico, can never forget its scenic beauty enhanced by a profusion of magnolias, oleanders, dogwood, and roses which bloom throughout the year. One of the most familiar landmarks is the old lighthouse erected in 1848.

Our national beekeepers' meeting to be held in that city on January 17 to 19, 1950, offers an opportunity for beekeepers and those affiliated with our industry, especially those in the North, to get away from the cold and snow for a few days at least to attend this meeting and thus combine business with pleasure.

It will be noted on page 778 that a worthwhile program is in the making. It seems essential that leaders from various sectors of our industry get together periodically to solve problems and to plan intelligently for the future. This Biloxi meeting furnishes an opportunity for accomplishing much good for our industry. Let's take advantage of this opportunity.

Beekeeping in Alaska We occasionally receive inquiries regarding the beekeeping possibilities in Alaska. From the February 1946 issue of The Alaska Farmer published by the Department of Agriculture at Fairbanks, Alaska, we glean some facts concerning bee culture in that country.

Beekeeping has been tried by widely scattered individuals in Alaska since 1900 and some experiments have been conducted by the Matanuska Experimental Station.

It seems that long winters and excessive moisture constitute the major difficulties in wintering bees. Should the temperature rise to permit bees a cleansing flight during the winter, most of the bees are likely to be lost on the snow.

Colonies have been wintered in a dark root cellar, but after being confined in such a repository for over six months they are quite weak in the spring. However, such colonies have been built up in the spring at considerable expense and labor.

Beekeepers who follow the practice of importing package bees from the U.S.A. to start colonies in the spring, then kill off the bees in the fall to have the hives again restocked the following spring, are the most successful.

Averages of from 75 to 100 pounds of honey have been obtained in the Territory.

Price Support May Stabilize Industry Since price support for honey has become a reality (see article by Roy Grout on page 757), there already appears to be a feeling of stability among beekeepers. Generally speaking, we do not favor government subsidy. Theoretically, an industry should stand on its own feet and justify its existence. However, if Uncle Sam can lend a little aid when needed, until our industry gets squarely on his feet—well and good. At least this appears to be the consensus among industries that are receiving government aid.

As brought out by Mr. Grout, we should take full advantage of the support being given and organize our industry. We should have clear cut objectives, then do all possible to attain them.

Our industry, which at present is somewhat wobbly, does need to be stabilized. It is our sincere hope that price support may constitute the needed temporary crutch, until our industry can walk alone.

Beekeepers, Beware of Swindlers Fortunately, a large majority of the people in this world are honest—at least, most of us try to be. Those who are honest apparently think others to be honest and consequently may be "taken in" once in a while.

Vernon C. Culhane of Falfa, Colorado, Editor of the Honey Salesman, a monthly publication interested in better honey markets, calls our attention to the fact that beekeepers who have honey to sell should be warned against the possibility of doing business with a few so-called honey buyers who apparently are out to pull some shady deals. Under no consideration should a honey producer make a shipment of honey without knowing about the dependability of the buyer. It is preferable to sell for cash in advance, or shipper's order bill of lading. While there may be comparatively few honey buyers

who will take advantage of the honest beekeeper, it is well to play safe and sell only for cash in advance.

Mr. Culhane, who, by the way, has done a good job with his publication, is to be commended for drawing our attention to this matter.

* * * * *

G. I. County Meetings During the past few months we have been invited to appear on programs sponsored by members of the G. I., for young farmers who are especially interested in soil conservation, better methods of farming, and the growing of more legumes to increase the fertility of the soil. It seems to us that here is an opportunity for beekeepers to help promote a better understanding of the value of bees to agriculture.

We have noted the keen interest manifested by these boys. Some of them may eventually become beekeepers, possibly commercial honey producers. In any event, if bees are kept on their farms, the production of legume seed will be increased and, incidentally, our industry should be benefitted.

Obviously, there is a shortage of bees in most counties of this state, and the same can be said of counties in other states. According to the best statistics available, there is only one hive of bees for each 85 or 90 acres in Ohio. Fortunately, this does not include the many swarms of bees in trees and sidings of buildings which are rendering a valuable service in pollination if not in honey production.

It seems obvious that legume seed production will not increase in any marked degree until there are more hives of bees throughout the country. At one time, so-called wild bees made their homes along old-fashioned crooked rail fences. At present one seldom sees such a fence. Straight wire fences which do not afford shelter for wild bees or even game have replaced them.

These young up-and-coming farmers in the G. I. groups over the country are going to see to it that more honey bees are within flying distance of their legume fields as well as orchards and vegetables.

It is remarkable how the honey bee fits into the general program of producing more legumes and of soil conservation. When the dependence of agriculture on the honey bee is pointed out to farmers and those who have charge of farming activities, our industry will actually begin to develop as it should.

* * * * *

Sulfathiazole There has been considerable discussion pro and con during recent years regarding sulfathiazole in the control of American foulbrood. A reprint of a paper "Sulfathiazole in Relation to American Foulbrood" by H. Katznelson, Bacteriologist, and C. B. Gooderham, Dominion Apiarist, presented at the 60th annual meeting of the American Association of Economic Entomologists in New York in 1948 and contributed by the Division of Bacteriology, Bee Division, Experimental Farm Service, Department of Agriculture, Ottawa, Canada, is now available.

The discussion and conclusions of the paper are given below:

The results presented indicate that American foulbrood may be controlled with sulfathiazole when used carefully by experienced workers. Whether the rank-and-file beekeeper can do this remains problematical. The human element was perhaps chiefly responsible for the failure of other promising treatments for American foulbrood; but even under the controlled conditions in the experimental apiary, recurrences of the disease in sulfa-treated colonies were observed. It is by no means certain that the six colonies listed in Table 2, though apparently free from disease, will not show evidence of it next year or the year after. Consequently, treatment with sulfa drugs may prove a long-term matter involving considerable time, labor, anxiety, and uncertainty. It is in part for this reason that according to Eckert (2) "Most of the commercial beekeepers in California prefer to destroy the occasional diseased colony."

The masking and spread of the disease is one of the most serious considerations involved in the use of these drugs. The apparent disappearance of all visual signs of the disease may lead to careless handling on the part of the operator resulting in contamination of apiary equipment such as extractors, in the mixing of parts from infected hives with those from disease-free hives, in the mishandling of infected honey, and so on. For these reasons it has been suggested that sulfa treatment should be supervised by experienced personnel and that the infected treated colonies be isolated and placed in quarantine. The State of Florida (4) was the first to modify (not remove) its burning law to incorporate this treatment but only with the above provision.

It appears likely that sulfa drugs may play a definite though perhaps not a decisive role in the control of American foulbrood. It may be particularly useful as a preventive measure in areas where foulbrood abounds, for swarms of unknown origin, and for package bees. The experimental work to date certainly warrants further extensive long-range trials by proper authorities.

From North, East, West and South

SOUTHERN CALIFORNIA, Nov. 2

Weather: Both winter and summer seem to be in the air these days in Southern California. Since our last letter we have had some very warm days and some very cool days. Extremes seem to be in order. There has been little rain all over these parts. In some places there was a heavy downpour.

Market: Wholesale and retail prices of honey have slipped and that doesn't sound too encouraging to the beekeepers. Five-pound pails have been seen in stores marked as low as 69 cents. Whereas it may not have been the best grade of honey, the price looks discouraging to the hard-working producer. However, it looks as if the Anderson Amendment Farm Bill is going to pass, and if everything works according to schedule, honey prices should be definitely stabilized and increased. Woodrow Miller of Colton, who has spent considerable time in Washington, D. C., has kept his Southern California beekeeper friends well informed as to what has been going on in the House and Senate.

Miscellaneous: Some of the bees which were moved to the cotton have been brought back and the remaining colonies will probably be returned this month. The majority of them are single-story colonies and seem to be in good condition with plenty of winter stores.

Mr. and Mrs. A. K. Whidden of Hemet, who were listed among the leading beekeepers of our southland but retired a year ago, have recently returned from an auto tour of the United States and Canada. While on the trip they visited the J. W. Hodgson plant in Jarvis, Ontario, Canada. As most of us know he invented the Hodgson extractor and several other items. The Whiddens found this a most interesting place with everything in apple pie order. While in Cocos, Florida, they saw a sign board which read "Whidden's Orange Honey". Upon inquiring they found a man by the name of Woodrow Whidden—no relation—who was producing Florida orange honey. Strange how we Californians sometimes think that orange honey should come from California only.

An interesting headline in a recent newspaper reads "Man Close to Making Better Bee But Can't Make Better Honeycomb". According to the article the better bee is one that can fly from the comb in winter without catching cold. Whole colonies have been wiped out in cold places and even in warm Southern California the bees have to stick pretty close to home much of the time in winter. As for honeycomb, the bees seem to be much smarter as the makers of that and man might as well keep hands off.

On account of the smaller income from their citrus holdings because of the lower price received and the higher cost of production, some growers are reaching out for something that will add to their income. Some have already turned to chicken raising as a sideline.

We took a drive in the back country recently and were greatly surprised at the dryness of it all. Of course, we knew that it was dry but it looked worse than we had expected. Grass is a minus quantity, brush is dry and shows little sign of life. Then coming back and driving through the beautiful green citrus groves makes us think what a little water will do. The beekeepers are certainly lucky that they have the orange blossoms to depend on as honey producers in the spring time.—L. L. Andrews, Corona, Cal.

NORTHERN CALIFORNIA, Nov. 1

Weather: Only light precipitation of no consequence fell in scattered districts with some snow in the higher mountains during October. In the valleys the temperatures were comfortable during the day, although some furnace heat felt good in the early mornings in this sec-

tion. A few soaking rains during the rest of the year would tend to replenish a depleted water supply in most areas. The fields are dry and brown and fire hazards still are present.

The Honey Crop: The Marketing News Service, the best source for this information, indicates that California produced something over 22 million pounds this year but in many portions of Northern California the crop was anything but satisfactory. Some beekeepers did not extract while others took only a "token" harvest. In other sections the crop was excellent. Sources which have been dependable in most years produced in some sections while only a few miles away the flow was disappointing. Fewer package bees were shaken this year than in several previous years, so the lack of production could not be blamed on colonies weakened from this cause. In years of short production the honey is usually darker in color and this was true in some districts.

Markets: Most beekeepers who had honey to sell have been waiting to see what would be the result of a price support if and when it was passed. As a result, those who produced a crop of honey have a considerable portion of it in their warehouses. Offers to buy have been few and the prices quoted have been too low for most beekeepers to accept, being seemingly out of line with retail prices and costs of producing honey. Honey has shown some improvement in retail sales and it is possible that prices and sales will pick up during the winter months. Some beekeepers are marketing their own honey but this method is difficult in sparsely populated areas where commercial beekeepers operate. Those beekeepers who can market their crops in nearby cities can make good wages this winter, considering the difference between the retail prices offered the producer and the retail price to the consumer. Whether the support price applies to this year's crop or to that of 1950 remains to be seen. A support price should tend to stabilize the market but it does not actually sell the product supported.

Bee Poisoning: Some reports have been received of the reduction in the strength of colonies following the application of various organic poisons. In one case three-story colonies were reduced to "nuclei" following the application of chlordane for grasshopper control. Probably some of the unaccountable reduction in honey crops have been due to weakened colony strength. In some cases this undoubtedly has been true and it might be more extensive than is realized.

Miscellaneous: During the first two weeks in October the writer had the interesting experience of surveying the beekeeping conditions on the island of Molokai and some sections of Oahu in the Territory of Hawaii. The trip over took less time than it takes us to drive to the southern portion of this state and was much more comfortable. Molokai is known as Friendly Isle, and so it is. But the results of American foulbrood, careless management, and the wax moth were evident in every section of the island where bees were once kept or where some are still living at this time. Thousands of acres of kiawe or algaroba hold promise for the fine effort which is now being made to rehabilitate a beekeeping industry which once ranked as one of the largest in the islands. The algaroba honey is white and of excellent flavor but granulates quickly. Care must also be taken in its production to prevent fermentation. Nosema also plays a big part in management practices, so those who keep bees in the Territory of Hawaii have their problems. The beautiful scenery and the hospitable people make it an interesting place in which to work or just to visit.

Meetings: To get back to the mainland, attention should be called to the annual convention of the California State Beekeepers' Association on December 6, 7, and 8 in Fresno, headquarters to be at the Fresno Hotel. Other state meetings will be held in different sections of the country during the winter period and the main topic of discussion will probably be on honey prices and honey marketing. Here is hoping that something will come out of all the many hours of discussion on this important phase of beekeeping.

—J. E. Eckert, University of California at Davis.

COLORADO, November 2

Weather: As usual the weather of our past summer was favorable to bees. But it was also favorable to alfalfa weevil, lygus bugs, and grasshoppers. I never saw the grasshoppers so thick here. When I drove into one yard in August one morning I checked the grasshoppers on the covers of the hives. No hive had none and there were as many as 26 on one cover. They had finished their breakfast and I presume they were warming their feet before they started in on their lunch. First they ate the leaves and blossoms of the sweet clover, then they ate the stalks, and now that frost has driven them under ground I suppose they are eating the roots.

We have had some good rains and the soil is in excellent condition. Honey plants look good. The first killing frost was about two weeks earlier than common, but rabbit-brush has yielded well and colonies are well provisioned.

Crop: Naturally our crop was not so hot—about two-thirds of what we consider normal. It was one of the three years in 15 that we have averaged less than 90 pounds per colony. Even that may sound pretty good to some beekeepers, but we spend more time and trouble to get large yields than most beekeepers do and I doubt if the western Colorado average was more than 60 pounds this year.

Market: 1949 will go down in my memory as the year of no demand for honey. Although we have 26 apiaries conveniently located along highways in the counties in western Colorado this was the first year that we had no honey stolen from our hives. People just don't want honey when thieves won't steal it. Stealing has never been bad, but there has always been some loss, a super here, a few combs there, but in 1949 not a pound was taken.

Prices have been ranging widely. Retail 60's are selling from $6.00 to $9.00, and 5-pound jars at from 69 cents to one dollar. Even at the lower prices honey has not moved well at any time during the summer, although I do believe that retail demand has improved some during the past month. This may be just because October is a good month to sell honey, but may be an indication that there is a change in the trend, for September is usually our best month for selling honey at retail and this past September we sold scarcely any.

Price support is bound to have its effect on the price or the Government is going to have a lot of honey on its hands and honey will be in the dog house worse than ever. A demand for honey may come back gradually as we have hoped it would for the past two years, but such a comeback in demand could be guaranteed and greatly accelerated by an intensive advertising program. Until it is done honey will never take its proper place in the food thinking of the American housewife. She buys largely what the ads tell her to buy.—John W. Holzberlein, Jr., Grand Valley, Colorado.

WYOMING, November 1

Weather: At our altitude of 3775 we had a killing frost September 10 and as most of our state is higher, ranging up to 7000 in the Bridger Valley and 7200 at Laramie, frost came a little earlier in the higher regions, following a summer that was lacking in rainfall from about the first week in July at the start of the honey flow until after frost came.

Bees: The build-up on dandelions was good and the flow was good for a long enough time to make swarming pretty heavy. There was an abundance of bee power generally and bees are going into winter in good condition. Most of our beekeepers pack but some get by in good shape with just a good wind break, plenty of good stores, and full-strength queenright colonies.

Crop: Wyoming doesn't have the alfalfa and sweet clover acreage it once had. These have been largely replaced by various pasture mixes with red clover the only nectar-bearing plant. Honey yield was best in the basin where in spite of heavy stocking, colonies made an average of 100 pounds. Fremont County was a close second but on the east

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side of the Big Horn Mountains 50 pounds or less was the run.

Market: This is an unpleasant subject. We have a very limited local market owing to our sparse population. The city of Oakland, California, by way of comparison, has 50,000 more inhabitants than the whole state of Wyoming. The population of Wyoming is scattered out over an area 375 miles square. Considerable out-of-state honey finds its way into our few stores and invariably brings with it a drop in price. Wyoming honey was selling retail at 89 cents per 5-pound pail and if the present price of 65 cents was moving any more honey it wouldn't be quite so bad but it doesn't seem that cutting the price below a fair point has ever been a sales help — in fact, it definitely slows up sales as merchants hesitate to stock any product when it is declining in price.

Miscellaneous: Our Sheridan County Fair with its former exhibits of bees and honey was replaced by a rodeo some years ago. I know from experience the fair exhibits do help to create interest in honey and stimulate sales. Government price support may be a temporary expedient but since surpluses are building up on other commodities enjoying this shot in the arm with its attendant acreage control, it seems certain the same will happen to honey. The crying need is promotional work that will show the housewife WHY she should buy honey instead of synthetic syrup, even if it does cost a bit more, for the health of her family.

Dr. Quigley of Omaha in his book "The National Malnutrition" says that the manufacture of white flour and white sugar should be stopped by legislative action. The magazine "Organic Gardening" decrys the use of commercial fertilizers and poison sprays. It seems the use of compost, lime, slack coal, sawdust, and other natural measures are turning the trick for a goodly number who have had the courage to leave the beaten path. I purchased a bushel of grapefruit from an "Organic" orchard in Florida last winter. The quality was excellent, though the color and size were not as uniform as where they were picked green and gassed into color. From Prof. Eckert's article in the November issue, it looks as though the old school of thought of using chemical poisons is due for an overhaul. When those employed in the orchards have to be hospitalized and one young entomologist lost his life out in the open, how about John Public who eats the fruit and vegetables sprayed with these toxic materials? Of course, washing is required but chances are good for some of it to get into our food. One thing is certain—the doctors are doing a good business, and a few years ago Consumers' Research warned of this danger and suggested washing all fruit and vegetables before cooking or eating them. Arsenicals I understand to be cumulative and residues have been found in fruits and vegetables. It might be said that we use carbolic acid to remove honey but I don't believe it is a parallel. If it is, we'd better quit using it.—Earl C. Reed, Ranchester, Wyoming.

OKLAHOMA, November 1

Weather: Through August 31, our city received 16.68 inches of moisture. Another 16.48 will be necessary to reach the annual average of 33.16 inches. Here comes September and October with 9 inches of rainfall. On October 31 the first frost of the season left a glittering coat of ice on grass and car tops early today after the mercury dipped to an overnight low of 31 degrees. It was Duncan's coldest temperature this fall and followed strong winds and showers yesterday that left .21 of an inch of moisture. The official high for Sunday was 51 degrees, but the north winds made it seem cooler.

Bees and Plant Conditions: Oklahoma beekeepers had 58,000 colonies of bees on July 1—the same number as a year ago, according to the preliminary report of the Department of Agriculture. Winter and spring losses amounted to 16 percent this year compared with 18 percent last year. New spring colonies from package bees, swarms, and division amounted to 19 percent this year compared with only 12 percent last year and 27 percent

in 1947—the last year of increased colony numbers—when a total of 64,000 colonies was reached. Condition of both colonies and nectar plants was reported at 87 percent on July 1, which was much better than the 82 condition reported for colonies and 81 condition for nectar plants a year ago. And with any kind of a break in weather conditions during the next few weeks, bees should go into the winter with ample stores.

Market: The honey market continues generally dull, the chain stores are well stocked, but the demand is light. Good quality comb honey is scarce. More calls for light honey, and dark honey is moving slowly.

Honey Exhibits: Our Stephens County Free Fair on September 14 listed "Apiary Department" for the first time in the fair catalog. The writer took several blue ribbons which he has placed deep down in his treasure chest. Entries in this department are on the increase. We hope more people will become interested.

Miscellaneous: The Stephens County Beekeepers' Association is coming along well with 200 members on the roll, and with the help of our County Agent Fred Huffine, who is also a beekeeper. Our meeting on October 28 was honored to have as our guest L. J. Auston, State Bee Inspector, Glen Gibson, a commercial beekeeper from Minco, Oklahoma, Lymon Coe, expert beekeeper, Ardmore, Oklahoma, and C. F. Stiles, Extension Entomologist from A. &. M. College, Stillwater, Okla. A film "The Indispensable Bee" was shown for the first time in the State of Oklahoma and was enjoyed by all.—V. K. McMasters, Duncan, Oklahoma.

WISCONSIN, November 2

Weather: October was warm and dry, ideal for preparing bees for winter. It was warmer than September and while brood rearing stopped early in October, nevertheless we were able to inspect all colonies and prepare the winter brood nest so that honey will be available to the cluster until spring.

Wintering depends so much on the availability of honey and pollen to the winter cluster that we have come to consider it the major factor in preparing a colony. If there is no clustering space in the upper brood chamber, the cluster may locate in the lower chamber, start brood rearing there normally in January and February. In case of a prolonged period of cold weather the cluster will surround this brood and unless it can cover frames of honey may starve. Therefore, attention must be paid to the organization of the colony and its stores in order to overcome winter losses.

State Convention: Wisconsin Beekeepers' Association held a very fine state convention at Chippewa Falls on October 28 and 29. The Association changed its constitution a year ago to provide that all business be done by a board of managers. This board consists of officers, district presidents, and delegates from county associations. The Board spent a great deal of time between sessions on business problems. However, it left the sessions free from what sometimes becomes a prolonged discussion which breaks in on important program topics.

Marketing and Honey Displays were topics discussed more freely than in past years. Beekeepers are learning the value of honey exhibits at fairs to interest consumers. Better displays in grocery stores will help create an impulse to buy. Labeling honey according to flavor found a favorable reaction, as did closer cooperation between the beekeeper and the storekeeper. Some beekeepers remarked that we have been inclined to condemn the storekeeper for not doing his best for us, which gets us nowhere. We must seek his cooperation and work with him.

The Market: Five-pound glass jars are retailing in stores anywhere from 79 cents to $1.20 per jar. The average is around 90 to 95 cents in chain stores. Movement was somewhat slow in October, perhaps due to warm weather, but it should pick up in November. After January 1 the sale of honey has usually slowed down for some weeks. Beekeepers are making every effort to increase sales before the Christmas holidays.

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Some beekeepers report their best grade of honey, meaning their best-flavored honey, sells faster at $1.20 per five-pound jar than their darker and poorer-flavored honey at 95 cents. Much can be done by creating a reputation for a brand and a flavor. One beekeeper exhibited jars of six different flavors of honey at the convention: They were: clover, basswood, raspberry, buckwheat, wild flower, and tickweed. He buys honey of flavors he does not produce and is developing a special trade for them. Each jar bears the name of the flavor in large letters. This may be the coming thing, as consumers may buy more honey if they can get the flavor they like.—H. J. Rahmlow, Madison, Wisconsin.

VIRGINIA, November 7

Weather: September and October have been all that could be desired in regard to weather here in Virginia. Bees seemed to enjoy it as well as beekeepers. Here in the south central part of Virginia (Halifax County) we had our first killing frost last night. Bees have had unusually good weather for gathering the fall flow. We had several good rains along through this period in most sections, and clover and grasses are looking very good. In most sections goldenrod and asters bloomed well and produced a nice crop of honey where the colonies were strong enough to gather it. Many queens were short of laying space because of lack of super room for storing this nectar.

The Honey Crop: Virginia produced a fair crop of honey this season, not as much as some years, but a better average than last season. We still have too many low producing apiaries; too many poor queens. I believe the honey flow is improving in many sections on account of Ladino and other clovers being planted for grazing and land improvement. Many beekeepers have had to move their bees more than 200 miles to enable them to harvest a paying crop of honey. I hope this will not be necessary in a few years.

The Honey Market: Honey has moved fairly well and at a fair price. Some of the large producers, who carried over some of their 1948 crop have been able to sell it this year. I believe all of the 1949 crop will be out of the producers' hands before another crop reaches the market.

Miscellaneous: The Beekeepers' Short Course held at Blacksburg, September 12 and 13, was enjoyed by all who attended. We plan to have the 1950 Beekeepers' Short Course at Charlottesville, Virgina. It is not too soon to start plans to attend. — Henry W. Weatherford, Vernon Hill, Virginia.

NEBRASKA, November 8

Weather: Ideal Indian summer weather, without the wind that so often is a part of Nebraska weather prevails at this writing. Roses blooming in November is something to write about, too. We are not, however, forgetting what happened to us in Nebraska last November 18, the day of the first of a series of big blizzards. We have had good fall rains this year, making conditions ideal for starting sweet clover fields.

Honey Crop: The crop harvested from our main source, sweet clover, was on the whole disappointing. There was an abundance of bloom but little nectar was secreted. Perhaps too much rain and prolonged cool weather were to blame. The fall flow of dark honey, mainly from smartweed or heartsease, has been abundant and those beekeepers who were not alert in removing sweet clover honey from the bees find a darker mixture.

Condition of Bees: Winged honey gatherers are entering winter in excellent condition due to the late abundant fall honey flow, and barring prolonged periods of cold weather, they should winter well.

Honey Market: Price cutters are at work, as is usual in the fall, trying to get rid of their crops in a hurry. Movement of good quality honey, well prepared and attractively packaged, is fairly good.

Beeswax: Demand is not so brisk for beeswax as it was last year and the year before, and prices offered have declined. Dentists, by the way,

are a good local source to consider in disposing of your beeswax. It is used for obtaining impressions in the making of plates. This is a market which might well be investigated and improved. Wax must be rendered free of foreign substances and be attractive in appearance.

Miscellaneous: The Sioux Bee Honey Association is sponsoring a series of very attractive advertisements in leading women's magazines. These are in colors and feature tested honey recipes, very cleverly illustrated. These efforts should reach and impress hundreds of thousands of potential buyers and users.—Benj. Nielsen, Aurora, Neb.

SOUTH CAROLINA, October 29

The honey season is about over in South Carolina. We have not had a frost yet, and today, October 29, is rainy and cool. It looks as though it might frost a little tonight. The bees in the state as a whole gathered a very poor crop. I would estimate it as being less than one-half of a full crop. In the sections of the state where hairy vetch was planted and, of course, a great deal of it reseeds, beekeepers had a fair crop and it was as pretty white honey as we have gathered in a number of years. Beekeepers who moved their bees up to the mountain district to get sourwood struck hard luck. It rained while sourwood was in bloom and the bees gathered what we think is honeydew. It is very black, thin, and fermented easily. Of course, this is hardly marketable but most of the beekeepers are not discouraged—they are hoping to have a good crop next year.

Honey has been so scarce that a good many beekeepers have taken off what little spring honey they had and the bees are going into winter on aster and goldenrod. For the last three weeks we had beautiful weather and the bees stored quite a great deal of aster. We all know that aster honey is rather poor winter stores. We can winter on aster honey if the weather does not turn too cold and we have good days for the bees to fly. I am afraid that a number of bees will live through until heavy brood rearing starts next spring and then will die unless the beekeepers feed them. It is hard to get a farmer-beekeeper who has only a few hives to feed at the proper time.

The state and most of the county fairs are over. I visited a number of the county fairs and the State Fair and most of them had creditable exhibits. With honey as short as it is in this state I was very much surprised to see the quality and quantity of honey on exhibit. Where the beekeepers were careful in selecting their honey, they had excellent exhibits. In most places the local merchants or honey buyers were after the exhibits as they stood.—E. S. Prevost, Clemson, So. Car.

SOUTHERN ALABAMA, Nov. 9

July brought us more rain than that month usually has. In fact, we had more rain during that month than we have had during July for many years. August came in rainy. September and October were dry months with October unusually warm. The first few days of November were cool with frosty mornings (some say a little ice). Our dry weather still continues.

Honey Flora: We do not have very many wild fall flowers that produce either nectar or pollen to any great extent. Most of those we do have are in the cultivated fields and these are such as peas (some call them beans and they do seem to belong to the bean family), Mexican clover, and Crotalaria. While all of these are a help in building up fall brood, none of them produce well enough for a colony to build comb.

Miscellaneous: Bees are in good shape for this time of year and do not seem to have drawn too heavily on their stores.

I read about the northern beekeeper who has colonies going into winter boiling over with bees—in fact, so heavy that when they are "hefted" the weight of the bees can be mistaken for that of stores. Our colonies have a comparatively small number of bees most of which are young, our summer and fall being

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long enough for the old bees reared during the major flow to have died off.

Honey prices are somewhat lower, some selling locally at $1.05 per 6-pound jar. Prices in the Alabama Farm Bulletin are from $1.98 to $2.75 postpaid for fall honey in 10-pound pails. Chunk honey is $2.90 per 10-pound pail, postpaid. The "postpaid" puts quite a reduction in the price as the postage on a 10-pound pail packed is 35 cents for first and second zone, and 46 cents for third zone. Extracted honey is moving slowly while chunk honey is selling rapidly with very little on the market.—H. G. Miller, Vinegar Bend, Alabama.

ONTARIO, November 8

Another active season has passed into history. The bees are all packed and now we can rest a bit. Not for long, though. All summer our better half has been making mental note of a number of things—odd jobs that need attention—to be sprung on us just when we think there is a chance of taking things easy. Periodically she says, "Why don't you go down and tidy up the cellar?" We have an unanswerable come-back to that. We say, "Well, all we can do is pick things up from where they now are and set them down some place else. So what's the use?"

Weather: Our autumn weather has given us some real variety. September was rather cool and damp. During that month we got some rain that we could have used to advantage in June and July. October produced some real summer weather with temperatures in the 70's. November came in with hard frosts, but today we are back to Indian summer again, and the newspapers contain reports of strawberries blossoming, lilacs in bud, and other freakish occurrences. Our Canadian weather is unpredictable. Last winter, for instance, we had only a few days of zero weather. This winter may be the exact opposite. I have vivid memories of the winter of 1934, I think it was, when day followed day of sub-zero temperatures. I remember particularly one night in January of that year. At bedtime we knew it was cold, and getting colder. At three a.m. I woke up and decided to see how cold it really was. Picking up a flashlight I went out on the porch in pajamas and slippers to look at the thermometer. Forty-two below! Believe me, I got back inside in nothing flat! That was the winter we lost 50 percent of our bees. However, such winters are unusual here in Southern Ontario. That distinction we leave to the prairie provinces, Manitoba and Saskatchewan, out where the air is so dry you don't feel the cold (after you get numb).

The next two months will be convention time. Canadian Beekeepers' Council meets in Winnipeg November 21 to 25 inclusive, and President Garland and his committees will no doubt find themselves faced with peace-time problems every bit at tough as those encountered in war time. Manitoba provincial association meets at the same time. Both of these events will be over when these notes appear in print.

Ontario Convention will be on December 19, 20, and 21, near enough to Christmas to make the spirit of the season evident in the convention proceedings. More concerning it at a later date.

As this is my final budget of notes for 1949, may I take this opportunity of wishing Gleanings editors and staff the season's compliments, and its many readers the same, and bon voyage in 1950.—Allan T. Brown, Peterborough, Ont.

MASSACHUSETTS, November 1

Weather: The temperatures this past summer have been pleasant and excellent for bee flight, but lack of rainfall during July and August caused one of the severest drouths that New England has ever had. This lack of rainfall affected not only the pastures and cultivated areas but swamp land as well. Goldenrod and wild aster bloomed, but the yield of nectar was insufficient to give a surplus except in a few localities. September and October have been about normal in rainfall and slightly above normal in tem-

perature, causing excellent growth of vegetation and clovers.

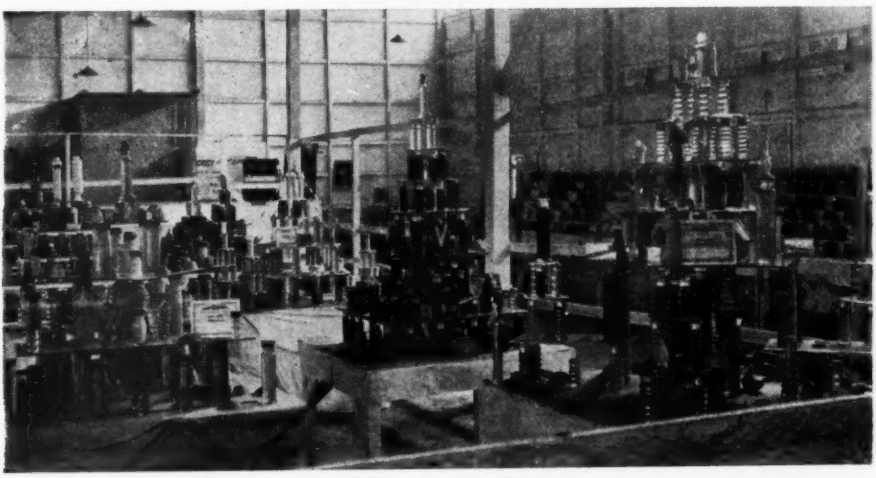
Bees and Honey Crop: Colony population was excellent up to August 1 as the early crop was excellent. With the drying up of all honey plants, including buckwheat, many colonies cut down brood rearing, and those that raised brood from their stores are now very light for wintering. Some yards are normal as to colony condition and winter stores but one yard located in fields of Ladino clover, another where buckwheat is grown, and failed to yield, and a third near lithrum, are all in poor condition, and many colonies will have to be united and fed for winter. Reports from other beekeepers are about the same as our own.

We are not removing what honey our bees may have above their winter requirements, for much equalizing of stores will be necessary next spring. Visions of a bumper crop dried up and we must be prepared to save our bees for 1950.

Miscellaneous: The practice of scattering apiaries over a wide area in groups of 15 to 30 colonies pays off in abnormal seasons such as we have had this year. Honey plants and moisture conditions differ to a considerable extent even in only a few miles. A beekeeper can stay in business if two or three apiaries fail in a season but if all the bees are located in one or two yards and hundreds of colonies are in a starving condition in the fall, winter losses would be a severe financial drain. We have never practiced killing off all the bees and restocking hives in the spring. The cost of bees would make it unprofitable here.

We find it a good practice to unite the underweight and understrength colonies in the fall to make them into good colonies rather than try to feed up small units and take a chance on their wintering. A good strong colony can stand adverse winter temperatures and can be divided in late April. A weak colony in the spring requires considerable care to build up and generally fails to make a good colony. There is some loss of queens when colonies are united, but queen losses are a small matter and can be replaced much easier than colonies.

Prospects for another season look bright, for the clovers are in excellent condition here on our farm and at other apiary locations. In order to remain a beekeeper with hives of bees and not just empty hives, we must keep going even when conditions are not to our liking. We are thankful that we do have good strong colonies in addition to the few not so strong. We know that we will be able to fill all the hives by April and May by dividing the strong colonies. — R. E. Newell, Medway, Mass.



Queensland Beekeepers' Association honey exhibit at the Royal National Show in Brisbane, Queensland, Australia.—Photo sent in by E. Evans, Secretary.

Sales Tales

By Tom Paisley

Selling Our Honey Crop Profitably

Once again beekeepers are faced with the problem of what price they should ask for their honey crop. This is a serious problem in that many beekeepers will give away their time and effort in managing the bees and processing the honey because they will set too low a price on their product.

Several things must be considered along with competition in establishing a price. The price competition of the large honey packers is certainly not the only consideration of the small back yard beekeeper. The man with five to fifty hives is involved in a different type of marketing. The problem is how to get the most return from a limited supply of honey. Large packers can often afford to sell for several cents a pound cheaper than the going market price because the difference is made up in selling carload orders or in establishing a new account which will move quantities of honey over a year's time.

The back yard beekeeper is not interested in this type of competitive marketing. He must consider three aspects in establishing a selling price. First, it is desirable that the selling price should provide interest on the money invested in equipment; second, payment for the hours spent in managing the bees and processing the honey; and third, a reasonable net profit for the entire operation. It is impossible to set a price for the bottled honey without knowing the cost in time and equipment to produce and pack the crop. Far too many beekeepers never receive adequate payment for the time which they spend in the bee business. This is usually a fault of their pricing policy.

We have stated in this column several times that honey is not a product which reflects greatly any price changes; that is, a family that uses a five-pound can of honey every year would probably not buy two cans if you cut your price in half. The problem of selling then is not one of price but of finding the correct outlet for your crop. The chief problem that we see at this time of year is beekeepers foolishly selling their honey at a price normally lower than they have to in order to compete in their limited market.

Price cutting is not a solution to selling honey, especially at this time when there are many small beekeepers competing for the local markets. The man who produces for retail sales some 100 to 1000 pounds of honey is not interested in establishing stores or roadside stands or other outlets for his honey. A small crop of this size would not warrant establishing outlets of this type for there would be no chance of filling repeat orders. Sound honey business for the small producer should be based on a limited market with repeat business that can be handled all year around. This supplying of the retail trade for the entire year is very important.

This brings us to a point which has hurt the honey market considerably. From the fall to the first of the year, when honey is processed and packed, we find in the major markets many small producers who are dumping their honey. This practice of taking the entire crop to market and selling it at any price which the buyer will agree to pay is extremely foolish. Honey, being a product which will keep indefinitely if properly handled, should be taken out of the farm produce type of marketing. Buyers of honey know that they can often force the price down because they can usually find someone to sell at an unusually low figure. It is to all our advantage to try to hold and push the price of honey up to a level where there is a reasonable profit for us all.

Selling is the key to this entire situation. By establishing a fair price and then attracting new users for honey, this resultant stiffening of our honey markets could be arrived at. During this season of the year there will be a good deal of honey sold by the smart beekeepers who will advertise and package their honey to be given as Christmas gifts. Last week I talked with an office manager of a Pittsburgh

company who buys eight or ten cases of honey each Christmas and gives this wonderful sweet to his entire office force. With a little red ribbon, cellophane, and imagination, attractive Christmas packages can be easily made. Why not try to interest some of your local businessmen in giving their employees an attractive package of your honey? There is the possibility of much more than just one sale here for those who receive a gift of your honey may return to became steady customers.

Ideas

We have asked several times in Sales Tales that beekeepers pass along a selling idea which has worked for them. To date, we have not received a single thought or a constructive and workable plan for the small beekeeper. There may be several answers to this. Perhaps the beekeepers who have worked out clever campaigns do not wish to share this information or perhaps beekeepers in general do not have any clever selling ideas. If the latter is true, it would certainly pay us all to spend a little time considering methods which would be practical to use in pushing the sale of honey.

Beekeepers will start early in the year building and painting equipment, they will work in the apiary during the summer to help produce the honey crop, then after the difficult task of extracting their honey crop, they will turn around and literally give their honey away for lack of sound selling methods. This does not make sense and certainly does not make profits. Let's all spend a few hours this winter considering and discussing this vital end of the beekeeping business — the profitable selling of our crop.

Marilyn Miller, the Honey Baby—daughter of Mr. and Mrs. Woodrow Miller of Colton, California. A number of beekeepers are now using honey instead of Karo syrup or other sweets for infant feeding. Marilyn has had only honey in her formula from the very beginning so she is really a Honey Baby.

Hotel Buena Vista, Biloxi, Miss., where the annual meeting of the American Beekeeping Federation will be held in January, 1950. —Photo by Walter Wright, Biloxi, Miss.

Annual Meeting of American Beekeeping Federation at Buena Vista Hotel, Biloxi, Miss., January 17, 18, and 19, 1950.

PROGRAM

January 16

Meetings of:
Marketing Committee
Howard Foster, Chairman
Organization and Programs Committee
C. D. Floyd, Chairman
Executive Committee

January 17

9:00 a.m. Meetings of:
Board of Directors
American Beekeeping Federation
All permanent committees
Registration and sale of banquet tickets

1:00 p.m. Call to order
Invocation
Welcome address
Report of the year's activities
Roy A. Grout, President, Hamilton, Illinois
Report of the Secretary-Treasurer
Glenn O. Jones, Atlantic, Iowa
Organization in Today's Economy
H. M. Bain, Farm Credit Administration, Washington, D. C.

6:00 p.m. Ladies Auxiliary Banquet (Seafood Jamboree)
Fun, food, and fellowship will be combined with an interesting program under the direction of Mrs. Carl E. Killion, President of the Ladies' Auxiliary. It's new. It's different. Make reservations before January 1 with Mrs. Killion at Paris, Illinois, or with Glenn O. Jones, Atlantic, Iowa. The feature speaker of the evening will be Mrs. Harriett M. Grace, Director of the American Honey Institute.

January 18

9:00 a.m. Can Government Programs Replace Individual Initiative?
S. R. Smith, Director, Fruit and Vegetable Branch, Production and Marketing Administration, U. S. Department of Agriculture, Washington, D. C.
How to Improve the Market for Honey
R. B. Willson, Chairman, Honey Utilization Committee, New York, N. Y.

January 18

9:00 a.m. Fundamentals of Food Marketing
T. M. Patterson, Production and Marketing Administration, Jackson, Miss.

12:00 m. Lunch hour

1:30 p.m. Aims and Purposes of the Bee Culture Laboratory
Avery S. Hoyt, Associate Chief, Bureau of Entomology and Plant Quarantine, Washington, D. C.

The International Meeting in Amsterdam
Jas. I. Hambleton, Chief, Bee Culture Laboratory, Washington, D. C.

Resolutions

Election of Officers

6:00 p.m. Annual Banquet
Harold J. Clay, Toastmaster, Fruit and Vegetable Branch, Production and Marketing Administration, Washington, D. C.

January 19

9:00 a.m. Pollination as a Part of Beekeeping.
S. W. Edgecombe, Chairman, Honey and Pollen Plants Committee, and Head, Department of Horticulture, Utah State Agriculture College, Logan, Utah.
Grover F. Brown, Chief Agronomist, Soil Conservation Service, Washington, D. C.
Four or more beekeepers who have had pollination work in 1949.

12:00 m. Adjournment

2:00 p.m. 1950 Board of Directors Executive Committee

New York State Meeting

By M. J. Deyell

When New York State beekeepers get together as almost 100 did at Syracuse on November 11 and 12, you can count on a worthwhile meeting.

Howard J. Norton, President, handled the program very efficiently.

A panel discussion led by Dr. E. J. Dyce on Wax Moth Control brought out a few points worthy of consideration in connection with fumigants used:

(1) **Cyanogas** and **methyl bromide** are extremely poisonous and should be used with great care. A dependable gas mask should be worn.

(2) **Methyl bromide** is the only fumigant that readily destroys wax moth eggs.

(3) **Carbon disulphide** is highly inflammable and explosive.

(4) **Paradichlorobenzene** is relatively non-poisonous and is not inflammable or explosive. Beeswax tends to pick up and retain the odor of this chemical.

In regions where wax moths thrive, it seems essential to have a special tight building where combs not in use may be stored and fumigated periodically.

R. B. Willson of New York City reported on some of his experiences with the committee which went to Washington to work on government aid for honey. The consensus seems to be that a subsidy on honey, while not generally viewed with favor, may be a good thing for the beekeeping industry. The price support secured recently, largely as a result of the fine work of the officers of the American Beekeeping Federation, has already had a steadying influence on the honey market. In fact, some producers are holding their honey until they know more about what will happen.

Emerson Long of St. Paris, Ohio, one of the largest commercial beekeepers in Ohio, gave us some valuable information on apiary management drawn from years of experience in operating around 4000 colonies. Mr. Long thinks we have touched the low spot and that the acreage of legumes should increase in the near future to insure better bee pasture. He stressed the following points:

(1) Leave packing on hives in early spring as long as possible.

(Continued on page 782)

Just News

The Colorado Beekeepers' Annual meeting will be held on December 12 and 13 in the Auditorium Hotel, Denver, Colorado.—J. Kyle McClaugherty, Sec., Monte Vista, Colo.

* * * * *

Referring to the article by Geo. W. Phillips in September Gleanings on pages 548-51, some readers have inquired about Figs. 4 and 5. It should be explained that there is a main hive entrance in the opposite end of the hive, in addition to the two small entrances in the side nuclei, as shown.

* * * * *

The Westchester County Beekeepers' Association will hold a joint Christmas party and meeting at 2:30 p.m. on Sunday December 18, at the Odd Fellows Hall, 20 Lockwood Avenue, New Rochelle, N. Y. Following a short business meeting, entertainment will consist of movies and distribution of gifts by Santa Claus. Members and guests are invited to bring along the children. Refreshments will be served, and visitors are always welcome to attend.—B. F. Miller, Publicity.

* * * * *

Southern States Beekeepers' Federation and the American Bee Breeders' Association meetings held on November 17 and 18 at Montgomery, Alabama, were well attended and worthwhile. Lack of space at this time does not permit a full report on talks made by over 20 speakers from various sectors of our industry. Advanced express rates on bees were discussed at considerable length and an attempt is being made to have these seemingly exhorbitant rates reduced—for the good of shippers, receivers, and the express company.

The A B B A conducted a bee breeding program this past season under the supervision of N. C. Jensen of Alabama and L. H. Little of Tennessee. This is to be continued next year.

Jas. I. Hambleton showed his pictures taken on his recent trip to Europe.

Harold J. Clay gave late information on the honey market, and **Mrs. Harriett M. Grace** told how the American Honey Institute is developing an ever-increasing demand for honey.

The Southern Federation officers elected for 1949 are: President, H. S. Foster of Gainesville, Florida; Vice-President, Raymond Fisher of Little Rock, Arkansas; and Secretary-Treasurer, Leslie Little of Shelbyville, Tennessee.

New officers of the ABBA are: President, M. S. Fortune of Mayhew, Mississippi; Vice-President, Leslie Little of Shelbyville, Tennessee; and Secretary-Treasurer, J. F. McVay of Jackson, Alabama.

The 1950 meeting will be held in Nashville, Tennessee.

* * * * *

An Alfalfa Seed Production Short Course is to be put on at the Utah State Agricultural College, Logan, Utah, from December 1 to 3, 1949. Cultural and plant breeding aspects will take up the first day. Problems of securing adequate insect pollination, grower - beekeeper relationships, planning and arranging for bees, and use of insecticides to control insect pests which will cause minimum hazard to bees, will be discussed on the second and third days of this special school. Among the persons appearing on the program, already well known to both beekeepers and alfalfa seed growers of the West, will be Frank E. Todd, Dr. G. E. Bohart, and F. V. Lieberman of the U. S. Bureau of Entomology and Plant Quarantine, and Dr. G. F. Knowlton and Prof. C. J. Sorenson of the Utah State Agricultural Experiment Station. Such schools as this can accomplish much for the benefit of beekeeping, as well as helping to train growers in better methods of legume seed production.

* * * * *

"Backlot Beekeeping"

This is the title of a new book by C. H. Pease of Canaan, Connecticut. A copy was received so recently that we have not found time to review it. As stated on the first page, it is written by a small beekeeper with 30 years' experience, especially for the beginner who knows nothing about bees as well as for beekeepers with limited experience owning from one to fifty colonies. The book contains 110 pages and sells for $2.00.

XUM

North Carolina is Bee Conscious

North Carolina beekeepers examining some frames in an apiary during Farm and Home Week at North Carolina State College in Raleigh, held on August 8 to 11. W. A. Stephens, Extension Beekeeper, sends this photograph.

Migratory Beekeeping Calls for Big Trucks

Alan Eby of West Elkton, Ohio, loads a truck with 550 hives of bees to move to better pasture. Mr Eby practices migratory beekeeping with his 5000 or more colonies.

MEETINGS

(Continued from page 779)

(2) Have a surplus of queens on hand for use as needed.

(3) Replace poor drone cell combs in brood chambers.

(4) Watch stores—especially prior to the main honey flow.

Jas. I. Hambleton of Beltsville, Maryland, who attended the International Congress at Amsterdam recently, showed slide pictures of apiaries and beekeepers taken during his trip. There were 18 nations represented at the Congress. An international organization was started, its chief objective being to start an international bee journal. Dr. Eva Crane will be the editor and the first issue will appear in January 1950.

European beekeepers respect American beekeepers and their beekeeping methods. The Holland Association has 24000 paid-up members and membership is compulsory.

Dr. Frank R. Shaw of the University of Massachusetts at Amherst, showed some exceedingly interesting slides to illustrate his talk on a western bee trip he made last summer. The views brought out work on various phases of our industry being developed at the different field stations throughout the country under Mr. Hambleton. Bee breeding, pollination, apiary management, chemical control of insects, and moisture within hives during the winter are examples.

Dr. W. L. Coggshall, who recently secured his doctor's degree, gave a splendid talk on beeswax—especially on various methods of rendering it. Pure beeswax is colorless and melts at about 147 degrees F. Wax can be produced by feeding sugar syrup. Color in wax is due to pollen or oil from pollen. There are approximately 600,000 individual wax scales per pound. Bees that are from 12 to 18 days old secrete wax but Dr. Coggshall has found wax scales on bees three days old.

Iron used for rendering stains wax. Scrapings and propolis should not be put in with good wax as they tend to lower the melting point. Wax picks up odors. Hot water presses are quite common. A steam press is more difficult to operate. Clear water lightens the color of wax and dirty water darkens it. Oxalic acid is best for purifying wax, and easier to handle than sulfuric acid.

E. T. (Ed) Cary, the faithful Secretary-Treasurer of the Association, who handles considerable honey, emphasized the importance of maintaining quality in honey packs. Table grade honey is moving quite well, says Mr. Cary. Beekeepers will have to put forth an effort to move the crop. Honey will not sell itself.

Marvin Webster, Manager of the Finger Lakes Honey Producers' Co-op., says the average honey producer is not as interested in the quality of honey as he should be. A beekeeper may dispose of his honey by cutting the price but to stay in business he must render a service and in so doing he is entitled to a fair price and margin of profit. Markets have been fairly steady and the small packs have increased during recent months. Mr. Webster thinks that if we had a crop of 300 million pounds instead of 230 million pounds it might be a good thing for our industry. Beekeepers would then actually have to do something about marketing. We are inclined to agree with him.

I had to leave the meeting at noon of the last day and therefore have no report regarding officers elected for the coming year.

* * * * *

High Lights of the Illinois State Meeting

By H. H. Root

The Illinois annual meeting of beekeepers was held, as usual in the St. Nicholas Hotel in Springfield, Illinois, on November 11 and 12. The program, as advertised, was carried out without a lapse. Dr V. G. Milum, for many years interested in the way bees communicate, has been making a very exhaustive study of the dances of the bees. He approves of many of von Frisch's conclusions and is arriving at some new conclusions of his own, all of which will be made public at the proper time. Dr. Milum is a painstaking observer, as proved by his array of notes taken at various times during the day and well into the night.

Roy Grout's talk regarding the

Federation and its successful fight for a price support on honey was well received.

Mrs. Phyllis Huffman ably presented the vast program of the work of the American Honey Institute.

At the business meeting on the second day, the Federation was voted an amount equal to 25 percent per member, or $87.50. The Institute was also given an equal amount.

The following officers were elected for the new year: G. H. Cale, President; Clyde Wilde of Roscoe; Ralph Bessey of Dwight, Carl Hampleton of DuQuoin, Hazel Burton of Springfield, Harley Walker of Sidney, Vice-Presidents; Hoyt Taylor of Pleasant Plains, Secretary; Wesley Osborn of Hillsboro, Treasurer.

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Notes from Minnesota Beekeepers' Annual Convention

By William B. Brown

The Annual Convention of the Minnesota Beekeepers' Association was held on November 8 and 9 in the Curtis Hotel in Minneapolis.

Probably due to the weather being excellent for packing bees, the attendance was not 100 percent, but those who did attend the two-day meeting cooperated to make it a very worthwhile gathering.

The lectures during the two days were varied and covered many important subjects related to the beekeeping industry.

On Tuesday evening a banquet and entertainment program was given in one dining room of the Hotel and a good meal and a good time was enjoyed by all.

On Wednesday, meetings resumed until the middle of the afternoon when the Convention was adjourned.

The Minnesota state beekeepers are to be congratulated for their excellent record in honey production during the past year. C. D. Floyd, State Apiarist and Secretary of the Minnesota Beekeepers' Association, is also to be congratulated for planning and bringing about a constructive annual convention.

Many county associations' meetings are larger than state associations and frequently the meetings are largely attended since distances are short and the meetings held frequently enough that the members get well acquainted. Such is the case with the Cuyahoga County (Ohio) Association. Their meetings are usually held in the Museum of Natural History in Cleveland. On the afternoon of October 30 about 200 were present. The insert shows Dr. W .E. Dunham, Columbus, Ohio, the principal speaker.—H. H. Root.

Summer and Winter in the Same Apiary

The same apiary at different seasons of the year. Snow does make a difference. And how welcome it is in winter for protection of colonies from severe weather. This apiary is particularly well located with the trees in the background forming a natural protection from prevailing winds. This is the apiary of W. W. Brand of Hamburg, New York.

Buy and Sell Here

CLASSIFIED ADS

Only responsible advertisers and honest advertisements will be admitted to these columns. References rquired from new advertisers not known to us. Rate: 15c per counted word, each insertion. Each initial, each word in names and addresses, the shortest word such as "a" and the longest word possible for the advertiser to use, as well as any number (regardless of how many figures in it), count as one word. Copy should be in by the 10th of the month preceding publication.

HONEY FOR SALE

WE BUY AND SELL all varieties of honey. Any quantity. Write us for best prices obtainable. The Hubbard Apiaries, Onsted, Michigan.

NEW CROP of honey shipped daily from producer in Florida. Pure orange blossom, 5 lbs., $2.25. Pure Florida comb honey, 5-lb. pail, $2.75. No C.O.D. orders, all shipments prepaid. E. R. Raley, Daytona Beach, Box 1610, Florida.

FLORIDA WHITE TUPELO, the world's finest honey—pure orange blossom honey — white clover, and buckwheat honey shipped in barrels, 60-pound tins, gallon cans, or in glass by the case. Pure maple syrup. Alexander Company, 819 Reynolds Road, Toledo, Ohio.

CLOVER extracted honey in sixties. Abram H. Brubaker, Lancaster, Pa., Rt. 1.

200 60-lb. cans sweet clover honey, special, $5.00 each. Get them. Pershing Gulden, Enderlin, N. Dak.

500 NEW CASES fancy clover-basswood comb honey with that old-fashioned flavor. Sample case, $10.00. F.O.B. Barger Apiaries, Carey, Ohio.

CLOVER HONEY in new 60-lb. cans, 12c. Order from ad. Ohmert Bee Farms, Dubuque, Iowa.

NEW CROP Clover Honey, white, extra good flavor, 15c per lb. in 60's. Lose Brothers, 206 E. Jefferson St., Louisville, Ky.

WHITE CLOVER honey suitable for bottling. Angus Carruthers, Syracuse, N. Y., Rt. 2.

We furnish Beekeepers and Dealers with the finest Michigan clover, and light amber honey for table use. We have the stock. Keep your customers supplied at all times. Get our mailing list. Address Townsend Sales Co., Northstar, Michigan.

FOR SALE — 800 cases comb honey. Buckwheat and goldenrod and buckwheat mixed. Edgar Williams, Pierpont, Ohio.

AMBER, LIGHT AMBER, AND WHITE honey in 60's. Sample, 15c. Also white comb honey. Joseph Fekel, R. 4, Vineland, N. J.

MICHIGAN FINEST CLOVER AND AMBER HONEY in sixties. Arthur Thayer & Sons, 2122 Ames, Saginaw, Michigan.

300 CASES BUCKWHEAT AND AMBER comb honey. L. F. Howden, Fillmore, N. Y.

CLOVER and AMBER honey in new cans. Norman Ellis, Caro, Michigan.

FOR SALE — CHOICE CLOVER AND LIGHT AMBER honey in sixty-pound cans, 12 cents per pound. E. G. Kyte, Fairview, Pa.

FOR SALE—200 60-pound cans mixed honey (amber) at $4.80 each. Bring your own truck. Stevens Apiaries, 278 E. College St., Oberlin, Ohio.

WHITE BASSWOOD HONEY in new sixties, 12c lb. Ten cans or more, 11c lb. Write for prices in large quantities. F.O.B. Paul Engelhardt, Wallingford, Conn.

RASPBERRY BLOSSOM HONEY—Fine quality and flavor, 60-lb. can, $9.00; 5-lb. pail, $1.20; you pay shipping charges. Frank Reith, Boyd, Wisconsin.

FOR SALE—Fine goldenrod comb honey, 8 case carriers. Also buckwheat comb and extracted. Chas. B. Hatton, R. 1, Jefferson, Ohio.

HONEY AND WAX WANTED

BEEKEEPERS TAKE NOTICE—We can not guarantee honey buyers' financial responsibility, and advise all beekeepers to sell for cash only or on C.O.D. terms except where the buyer has thoroughly established his credit with the seller.

WANTED — White and amber honey. Any amount. D. F. Treap, 316 Keenan Ave., Cuyahoga Falls, Ohio.

WANTED—Honey and wax, any quantity. Send samples and prices. Alexander Company, 819 Reynolds Road, Toledo 7, Ohio.

CASH FOR YOUR HONEY—Light extracted or comb. Regular trade send sample. 60-lb. cans furnished if desired. W. R. Moomaw, Stone Creek, Ohio.

HONEY WANTED—All grades and varieties. Highest cash prices paid. Mail samples. State quantity. HAMILTON & COMPANY, 1360 Produce St., Los Angeles 21, California.

WANTED—EXTRACTED HONEY— Clover or light amber. C. H. Denny, Rt. 4, Ravenna, Ohio.

HONEY AND WAX WANTED — Mail Sample. Advise quantity. BRYANT & SAWYER, 2425 Hunter St., Los Angeles 21, California.

WANTED — White extracted or comb honey. Send sample. Millersport Honey Co., Millersport, Ohio.

CASH FOR BEESWAX — Write as to quantity and we will quote price. Muench-Kreuzer Candle Co., Inc., Syracuse, N. Y.

CASH for your comb honey and all types extracted. Send sample and best price. Buckeye Honey Co., 3930 N. High St., Columbus 2, Ohio.

WANTED—Comb honey and extracted honey, large or small amounts. Send price list and samples. R. A. Raley, Box 2263, Daytona Beach, Fla.

HONEY WANTED
Carloads and less than carloads. Mail sample and best prices in all grades.
C. W. AEPPLER COMPANY
Oconomowoc, Wisconsin

G. B. Lewis Wooden Goods!
Dadant's World Famous Crimp Wired Foundation. — Their 85 years' experience is your safeguard. Catalogue on request.
Dotson's Apiaries
3059 W. Roxboro Rd., NE
ATLANTA, GEORGIA

Michigan Headquarters for
Root QUALITY
Bee Supplies
Complete Line of Bee Supplies and Honey Containers
Prompt Service
MICHIGAN BEE and FARM SUPPLY
Northern Branch at Elk Rapids, Michigan, closed for the season.
Main Office — Mail Order Address
Box 7 Lansing, Michigan

HONEY LABELS
Improved designs, embodying color, balance, simplicity, and distinction. Please send for free samples & prices.
C. W. AEPPLER COMPANY
Oconomowoc, Wisconsin

WANTED HONEY — All grades, any amount, send samples and prices. Cans exchanged if desired. The Honeymoon Products Co., 39 E. Henry St., River Rouge 18, Mich.

HONEY WANTED—White and amber. Send sample, quantities, and prices wanted. F. E. Morrison, Rt. 3, Box 3696, Auburn, Calif.

WANTED — Good buckwheat honey, state delivered price. Eastern Food Products, 115 Division Ave., Brooklyn, N. Y.

FOR SALE

QUEENBEE PAINTING OUTFIT, $1.00; colony records, 10-15c postpaid. Southwick Apiaries, Waban, Mass.

WE CARRY a full line of ROOT QUALITY Bee Supplies. Prairie View Honey Co., 12303 12th St., Detroit 6, Mich.

FOR SALE — Write for large free Bee Supply Catalog. We manufacture bee hives, foundation, tanks, and extractors. Listing many items not found in other catalogs. Walter T. Kelley Co., Paducah, Ky.

WRITE FOR CATALOG — Quality Bee Supplies at factory prices. Prompt shipment. Satisfaction guaranteed. The Hubbard Apiaries, Manufacturers of Beekeepers' Supplies, Onsted, Michigan.

The only comb foundation plant in the East. We sell foundation, work your wax, render comb and cappings. Twenty nine years' experience. Robinson's Wax Works, R.D. 3, Auburn, N. Y.

YOUR WAX worked into medium brood foundation for 23c pound, 100 lbs., $19.00. Fred Peterson, Alden, Iowa.

GOOD 5-gallon cans, used once, five cents each, at our warehouse. Safe Owl Products Co., 20 New York Ave., Brooklyn, N. Y.

FOR SALE OR LEASE—Seven to eight hundred colonies bees in ten-frame equipment located in Iowa. Sufficient full depth bodies with combs to equip all four high. Want to contract for delivery April 15th to May 1st after southern build-up completed. Will lease for 50 percent of crop or sell on good terms to reliable party. Box 1249, Gleanings, Medina, Ohio.

165 Shallow supers, 45 hive bodies, 25 bottom boards, 25 inner covers, 25 metal covers, 75 queen excluders, 75 Boardman feeders, Root 45 radial extractor. Equipment three years old. John H. Ellis, Torrington, Conn.

250 colonies Italian Bees. Ten-frame hives, metal covers, division board feeders. All equipment practically new. R. F. Baker, Sumterville, Alabama.

MISCELLANEOUS

WILL FILTER and bottle your honey. Write for information. C. H. Denny, Rt. 4, Ravenna, Ohio.

BEES AND QUEENS FOR SALE

We use all possible care in accepting advertisements but we cannot be held responsible in case disease occurs among bees sold or if dissatisfaction occurs. We suggest that prospective buyers ask for certificate of inspection as a matter of precaution.

CAUCASIAN — 2-lb. pkgs., $3.00; 3-lb., $3.75. Queens, 75c. Lewis and Tillery Bee Co., Rt. 1, Box 280, Greenville, Ala.

IN FLORIDA — 600 1½-story colonies, $10.00 each; Cypress hives. Combs in good condition, all young queens. With six frames of brood or more, and ready for production. No disease or junk, extra equipment below cost. Box 1610, Gleanings, Medina, Ohio.

QUALITY CAUCASIAN BEES — Book your orders with us now and get them when wanted in 1950. Bolling Bee Co., Bolling, Ala.

GOLDEN Italian Package Bees and Queens. Two pounds, $4.00; three pounds, $5.00; Queens, $1.00 each. Guilford Apiaries, 4300 A. Burlington Rd., Greensboro, N. C.

THREE BANDED Italian Package Bees and Queens. Two pounds, $4.00; three pounds, $5.00. Queens, $1.00 each. Bessemer Apiaries, 4300 A. Raleigh Road, Greensboro, No. Car.

PACKAGE BEES headed by Mountain Gray Caucasians or Leather Italian Queens. Write for prices. March 20 delivery. TWIN BEE CO-OP, 3616 Caucasian Circle, Tampa 9, Florida.

BEES and QUEENS. Send for FREE circulars. Over 30 years a shipper. Blue Bonnet Apiaries, Weslaco, Texas.

REASONABLE, 1000 lb. package bees with queens, 2-lb., 1-20, $3.00; 21-up, $2.75; 3-lb., 1-20, $3.75; 21-up, $3.50. April 1st delivery. Write Lloyd Apiaries, Rt. 2, Box 89, Mobile, Ala.

500 or more colonies fully equipped. One dollar each, balance less than rent. Good equipment. Good producing locations. L. D. Taylor, Harlan, Iowa.

THREE BANDED ITALIAN bees and queens for 1950. Write for circular. Alamance Bee Co., Graham, N. C.

FOR SALE — 650 10-frame 2-story colonies bees, fine bees, fine equipment, heavy fall honey stores, at $12.50 each, with locations, 25 or more. W. A. Wiley, Jeweler, West Point, Miss.

FOR SALE—60 two-story colonies, 10-frame, ½ with crop, $10.00. Selling because of sickness. Wilson, Route 3, Box 242E, Merced, Calif.

BREWER'S line-bred Caucasian Queens. We are booking orders for March 20, 1950. Write for prices. Member ABBA. Brewer Brothers Apiaries, 3616 Caucasian Circle, Tampa 9, Florida.

BEST WISHES for a MERRY CHRISTMAS and a HAPPY NEW YEAR to all of our customers. Walter D. Leverette Apiaries, Fort Pierce, Fla.

HELP WANTED

WANTED: Experienced queen man with ability to take charge of expanding apiary. Give details in first letter. Triangle Apiaries, North, S. C.

WANTED—Two experienced men familiar with migratory beekeeping. Baughn Stone, Box 606, Idabel, Okla.

SEEDS

Study your conditions, plan for better BEE PASTURE. Free circular "SEEDS OF HONEY PLANTS". Pellett Gardens, Atlantic, Iowa.

Whittle's

Leather Colored Italians

Get your Packages and Queens when you want them. Reserve 1950 Shipping Dates Early. Write for Our 1950 Prices On Package Bees and Queens Our Bees and Service Will Please You.

G. E. Whittle

Star Route West

Greenville, Alabama

Package Bees and Queens

Now Booking Orders for the 1950 Season

F. E. Morrison

Rt. 3 Box 3696

Auburn Calif.

Italians

Bees and Queens for 1950

We plan to offer the best Bees and Queens at the lowest possible price. Write for details.

A. M. Peach

Baldwyn, Mississippi

For Sale

Italian package bees and queens

Health certificate and live delivery guaranteed.

LYNN WILLIAMS

Mt. Shasta, Calif.

Three Band Italian

Package Bees and Queens

Jackson Apiaries

Funston Ga.

PRICE SUPPORT FOR HONEY

(Continued on page 757)

a stabilization of our honey market. Producers will be in the position of no longer finding it necessary to sell their honey to opportunist buyers to provide means for operating their colonies or for their livelihood. Through purchase agreements or other means, they will be able to borrow from their banks sufficient capital to live or operate until such time as they can dispose of their honey at a reasonable figure. Stabilization should enable the packers and cooperatives to put money into development, advertising, and sales promotion without fear of buyers obtaining distress lots of honey and underselling their markets. We may well see things happen to the honey industry in honey sales that we have never seen before.

Price support is just a prop for the industry. Price support will not solve problems of organization and marketing. Only we can do that and we can do it only by working together cooperatively and adequately supporting this work. This is our golden opportunity to organize effectively a national program of advertising and marketing to the end that we will be able to solve our own problem. **This is a must for the entire industry.** If we fail to do this, we will find ourselves in a worse position when our prop of price support is removed—and failing we will deserve such a position.

What the beekeeping industry must realize fully is that the success or failure of the price support program lies entirely in our hands. It is only an aid to the industry. It is up to us to see that the program works.—Roy A. Grout, President, American Beekeeping Federation, Hamilton, Illinois.

OLDEST BEE JOURNAL IN THE ENGLISH LANGUAGE

Keep up on markets, practices, scientific data, reguations, and plant possibilities.
1 year, $2.00, U. S. and Canada
Foreign postage, 25c a year extra

AMERICAN BEE JOURNAL
Hamilton, Illinois

BUTTONBUSH (Cepthalanthus occidentalis). Read page 523 November American Bee Journal. Four 12-18 inch postpaid, $1.20; 50 for $11.00. Free illustrated Nectar and Pollen Folder. NICOLLET COUNTY NURSERY, St. Peter, Minn.

SUPPLIES

ATTENTION BEEKEEPERS IN MINNESOTA and adjacent states. We offer a real service on Lewis-Dadant Supplies, honey containers, and labels at a price saving to you. Top market price paid for extracted honey and beeswax. HONEY SALES COMPANY, 1806-08 NO. WASHINGTON AVE., MINNEAPOLIS, MINNESOTA.

PECANS AND PEANUTS

PECANS AND PEANUTS — Delicious shelled pecans, 7/8-gallon pail perfect halves, $4.25; pail of large pieces, $4.00, prepaid. Indispensable for the Holiday Season. Make delightfully different Christmas gifts. Write for prices of bulk pecans. Shelled peanuts, 2 pounds, $1.00; 5 pounds, $2.00, postpaid. Roast them at home and enjoy oven-fresh flavor. Old apiarist. Sam Williams, Monroeville, Alabama.

TOO LATE TO CLASSIFY

DECAL LETTERS and numerals. Gold trimmed with black. Attractive durable signs for truck, show windows. Sizes, 2-inch, 5c each; 3-inch, 10c each; 5-inch, 15c each, postpaid. Tontz Honey Farm, Elsinore, Calif.

FOR SALE — Attractive duplex home, and Lake Frontage in Clermont, Florida, citrus country. With or without bees. Wilburt Wahl, Clayton, New York.

MAGAZINES

WESTERN CANADA BEEKEEPER—Official organ of the Manitoba Beekeepers' Association. One year, $1.50; two years, $2.25; three years, $3.00. In combination with Gleanings in Bee Culture, $2.75. 211 Affleck Bldg., Winnipeg, Canada.

THE BEE WORLD—The leading journal of Great Britain and the only international bee review in existence. Specializes in the world's news in both science and practice of apiculture. Specimen copy post free. 12 cents stamps. Membership in the Club including subscription to the paper, 10/6. The Apis Club, L. Illingsworth, The Way's End, Foxton, Royston, Herts, England.

Read the South African Bee Journal. Published every two months. Subscription 7/6 per year to the Treasurer, P. O. Box 3306, Cape Town, South Africa.

INTERESTED in Angora Goats? Read the Sheep and Goat Raiser, Hotel Cactus, San Angelo, Texas, the only ranch magazine published serving the Angora Goat Industry. Subscription—$1.00, Sample copy—15 cents.

SUNKIST ITALIANS

Guaranteed live delivery — Satisfaction. March orders a specialty.
Prices for Spring 1950:

	2-lb.	3-lb.	4-lb.	Queens
1-10	$3.75	$4.75	$5.75	$1.00
10-25	3.50	4.50	5.50	0.95
25-up	3.25	4.25	5.25	0.90

Sunkist Bee Company Convent, La.

YULETIDE HONEY GIFTS

(Continued from page 745)

der, ¼ teaspoon soda, ½ teaspoon nutmeg, ½ teaspoon cinnamon, ¼ teaspoon allspice, dash cloves, and ¼ cup ready-to-eat bran.

Dredge fruit and nuts with 2 tablespoons of the flour. Blend shortening and honey; add eggs and beat well. Add sour milk and jelly. Sift remaining flour with salt, baking powder, soda, and spices; add to egg mixture and beat until smooth. Add bran, fruit, and almonds; mix thoroughly. Line greased 8-inch tube pan with unwaxed paper; grease paper well. Pour mixture into pan and bake in slow oven, 275 degrees F., about two hours. If desired, cake may be glazed and decorated by brushing surface with honey 30 minutes before baking time is completed and arranging pieces of dried fruits, peel, and nutmeats in top. Cool and place in stone jar or closed container to ripen for three weeks or longer. Yield: 1 cake, 2½ pounds, or 8 individual cakes 5 ounces each.

Cake may be steamed in individual molds for 1½ hours. After steaming remove from molds to baking sheet and bake in slow oven, 300 degrees F., about 15 minutes.

Healthy Italian Bees & Queens
Write for 1950 Prices
Georgia Bee & Honey Apiaries
P. O. Box 312 Hortense, Ga.

TALK TO BEEKEEPERS

(Continued from page 759)

is part of the ethics of the hive—if you do not work neither shall you eat.

Taking Supers to Outyards in Fall

I mentioned extracting honey a few days ago. It occurred to me that it might be feasible to store some of these supers in the outapiaries during the winter instead of hauling them to the apiary house for storage. In this locality populous colonies need extra supers quite early in the spring for the storage of incoming nectar and for the expansion of colonies when brood rearing actually begins.

Furthermore, during wet spring weather it is sometimes difficult to drive into outapiaries. When supers are there, piled up properly and weighted down, supers are all ready when needed in the spring.

Getting Ready for 1950
Quality and Price is Right at
The Stover Apiaries
Mayhew, Miss.

Package Bees Italian Queens For 1950
Geo. A. Hummer & Sons
Prairie Point, Miss.
Established 1892

It's Not Too Early . . . .
to start to think about requeening. Remember that the way to insure acceptance of the queen is through the use of the Ashurst Sureway Queen Introducing and Mailing Cage. Check those who have already used this cage and find out for yourselves why they will now use no other method for introducing.
Superior Honey Company
Los Angeles and Madera, California
Ogden, Utah Denver, Colorado
Phoenix, Arizona

Modern Beekeeping
The picture magazine of beekeeping. We show you with pictures how to do the job easier, quicker, and better. Special inventor's page.
1 yr., $1.50; 2 yrs., $2.50; 3 yrs., $3.25.
Modern Beekeeping
Paducah, Kentucky

HERE are the remaining six Trade Practice Rules governing Trade Practices of ABBA of which we are a member:

7. To notify the buyer of any unavoidable delay in shipment from the time of delivery agreed upon at the time the order was taken.

8. To guarantee safe arrival of package bees and queens, and to replace immediately any that are damaged in transit, provided the consignee secures a written statement to cover any ap parent damage done in transit, on express delivery receipt, signed in full by the express agent and mails the same to the consignor at once with a letter giving full particulars.

9. To refund promptly upon demand of the buyer any moneys advanced if unable to fill his order satisfactorily according to accepted agreements.

10. To allow enough extra weight of bees at time of filling cages so as to assure fair and honest measure on arrival.

11. To make no false representations of my apiaries, queens, and bees, for advertising purposes.

12. To abide by the decision of the supervisory board in case of any dispute with a customer, the board to consist of members of the American Bee Breeders Association.

We have always followed these rules in dealing with buyers of
Package Bees
We expect to continue this in the future. Give us a trial.
Satisfaction Guaranteed
Rossman & Long
P. O. Box 133 Moultrie, Ga.

Little & Moore Apiaries
Originally
LITTLE'S APIARIES
The John M. Davis Strain
GUARANTEED TO PLEASE
or money refunded
April 15th to June 1st:
1 to 10, $1.25 each
June 1st to November 1st:
$1.00 each any number
Write for quantity prices
Little & Moore Apiaries
Shelbyville, Tenn.

CAUCASIANS
CARNIOLANS
A very Merry Christmas and a Happy and Prosperous New Year to you all. Queens and some packages Mar. 1, 1950 on. Glad to have your inquiries for early queens and bees in 1950.
Albert G. Hann, La Belle, Florida

A TRIP TO EUROPE

(Continued from page 739)

Willson were already out with their scythes and, in a few days, the greatest feast for bees' tongues or bee man's eyes will be no more.

I visited a beekeeper here. He had about 30 colonies in an immaculate and roomy bee house. The honey flow was on—but no supers were on the bees. He did not use supers. The hive had frames about 12 x 12 inches, the warm way, and there was room to put in a few extra frames if the bees needed them. No need for supers in a land where the ground is covered with snow on May 15 and flowers are gone by July 1, but they keep bees there—as where not are bees kept in this old world?

(To be continued)

* * * * *

KNIGHT'S
Three Banded
Leather Colored
Italian Bees and Queens
I guarantee full weight packages, young laying queens, safe arrival, prompt service, and your satisfaction.
No charge for clipping
John T. Knight
Hayneville, Ala.

A Famous Strain of
LIGHT COLORED ITALIANS
produced and shipped by
The Most Modern Bee Breeding Establishment on Earth
The Daniels Apiaries
Picayune, Mississippi

High Quality
Italian Queens and
Package Bees
For 1950
Carlus T. Harper
New Brockton, Ala.

ASKED AND ANSWERED

(Continued from page 763)

cality next season. At that time you can transfer the bees into modern movable-frame hives. During a honey flow bees secrete wax readily and build new combs quickly in hives containing frames with full sheets of foundation. It would be inadvisable to try transferring the bees until the main flow comes. As a rule the main honey flow starts in your locality about June 10 or a few days earlier or later, depending upon the nature of the season. You should not be too much concerned about the cracks in the hives, if the covers are rain-proof. This is one of the main requirements for successful wintering. The other two requirements are strong colonies and an abundance of good stores.

A simple and efficient way of transferring which has been used by old-timers and present-day beekeepers alike, is as follows: Turn the old hive upside down, remove all or nearly all of the bottom, and place over it a standard hive body filled with drawn combs or frames with full sheets of foundation, and a cover. Close all openings between the old and the new hive, leaving only an entrance in front between the two hive bodies. This will cause the bees to go in and out above the old crooked combs and below the new ones. By turning the old hive over we also turn the crooked combs upside down. This puts the cells in an unnatural position and makes them somewhat less suitable for brood rearing and the storage of honey. With the old combs in this position the bees will be less reluctant to leave the old brood nest. A comb of sealed brood placed in the new hive will be an extra inducement for them to start work in the upper story more quickly.

When the queen has a brood nest established in the new hive place a queen excluder over the old combs to prevent her going back, keeping the entrance above the excluder. Be sure to put on supers in time to prevent the new combs becoming crowded. Before the season is over the colony will have moved bag and baggage up into the new quarters, and the box of old combs can be taken away and the wax melted.

A Merry Christmas and a Happy and Prosperous New Year to You All!

What more need be said at this season? But we might well pause and consider how much richer than we were a year ago.

Not as men count riches, but in the things of eternal values: Friends we have gained. Our gifts to those less fortunate than we. The little helps we have extended our neighbors. And our exercise of virtues through which we are drawn into a closer walk with God. These are some of the true riches.

Jensen's Apiaries
Macon, Mississippi

YORK'S
Quality Bred Italians
Bees and Queens for 1950

Will be fully prepared to serve you with highest quality package bees and queens for the coming season. Booking orders now, prices will be in line, and announced at an early date.

York Bee Company
Jesup, Georgia, U.S.A.
(The Universal Apiaries)

?? 1950 ??

We believe that 1950 will bring stability to our industry. Only **QUALITY BEES AND QUEENS** will bring in profitable crops. **BESSONET** stock assures you both, plus real **SERVICE.** No deposit, or obligation to book your order.

Bessonet Bee Company
Donaldsonville, La.

SEASON'S GREETINGS

To our friends in every state:

It has been a pleasure to serve you by the distribution of selected, improved DR stock during the year.

Further improvement has been recorded by the breeder stock tested. This will be used to rear better daughter queens for your use in 1950.

Results in your yard will tell the story. Good stock is more vital than ever to meet the honey price situation.

Order early to assure delivery on your choice of dates.

Iowa Beekeepers' Association

State House **Des Moines, Iowa**

Plan Early for 1950 Package Bees

OUTSTANDING STOCKS: (1) Our regular Italian stock is continually forging ahead and giving excellent results. (2) A New Bee, a cross of three outstanding Italian Lines, Northern bred and tested D. R. stock.

These are among the foremost stocks on the market
Let us figure with you for 1950
Christmas Greetings

Garon Bee Company **Donaldsonville, La., U.S.A.**

Better Bred Queens **Three Banded Italians**

Thanks to our many customers for this season's business. Write us your requirements for 1950. We are ready to serve you.
Calvert Apiaries **Calvert, Alabama**

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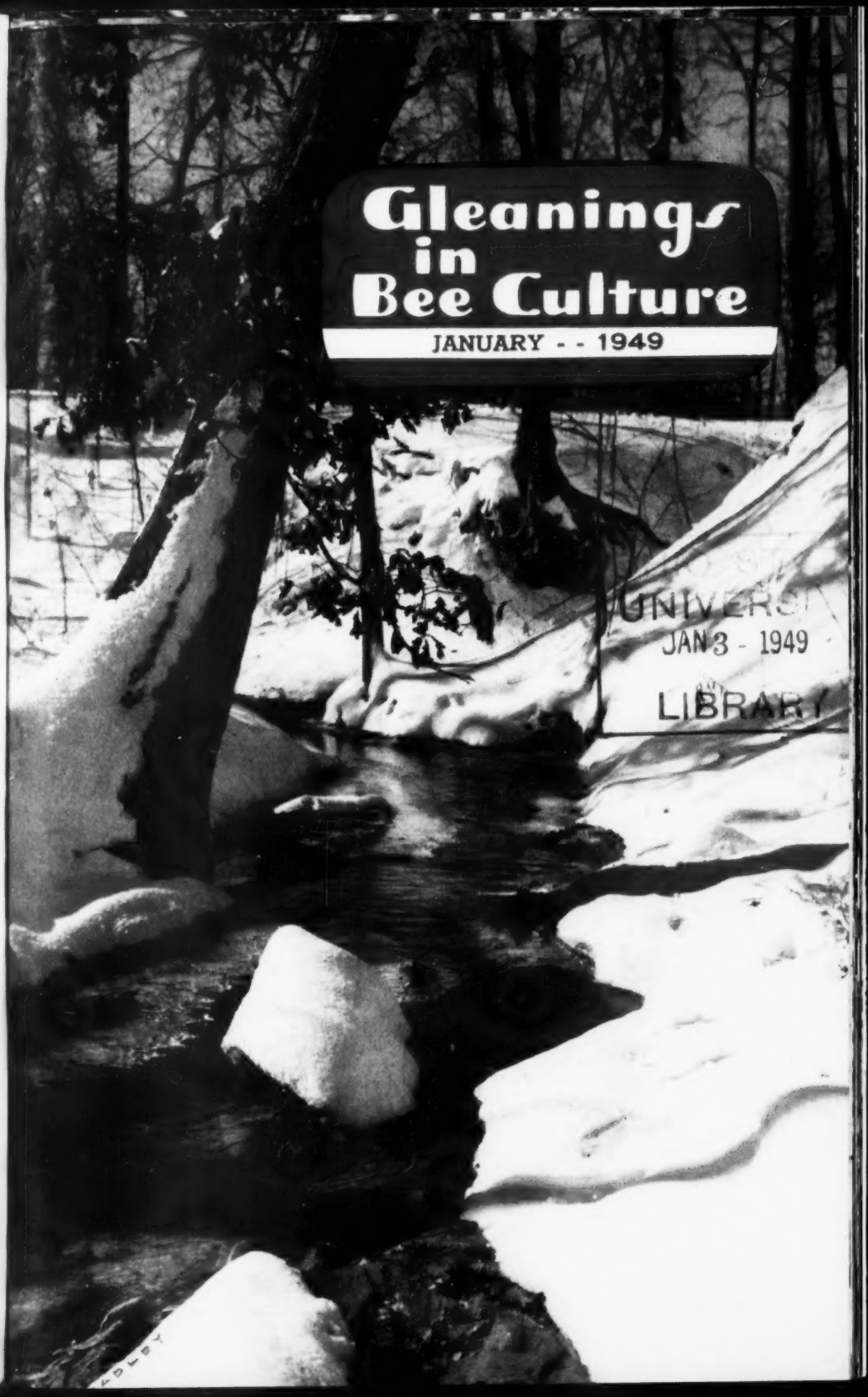
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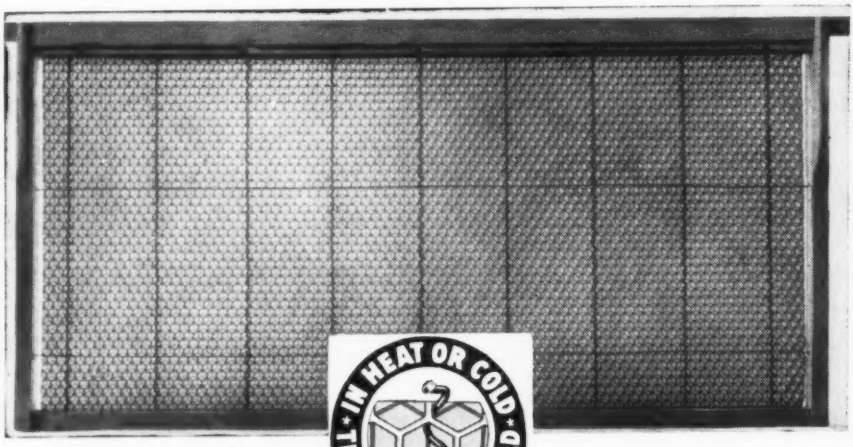
Save Money and Increase Your Crops with Dadant's Crimp-wired Foundation



Quickly inserted in the frame

Stands heavy loads and rough use

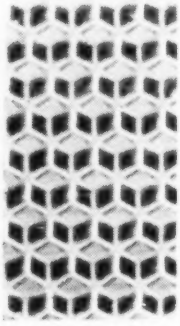
Supported with wires of crimped spring-steel through every inch of a pure beeswax sheet, Dadant's Crimp-wired Foundation gives you everlasting combs that save you money every year. Good queens lay in them freely, producing all-worker brood. The result is a large field force and greater crops.

Surplus Foundation

Only the lightest colored and the sweetest, cleanest beeswax goes into Dadant's Surplus Foundation. It quickly becomes a delicate and edible part of fine section comb and bulk comb honey.

Plain Foundation

For those who prefer plain (unwired) foundation, this carefully milled, hand-sorted foundation with nice, straight rows of uniform cells is ideal. It is carefully packed in tissue to reach you without damage.



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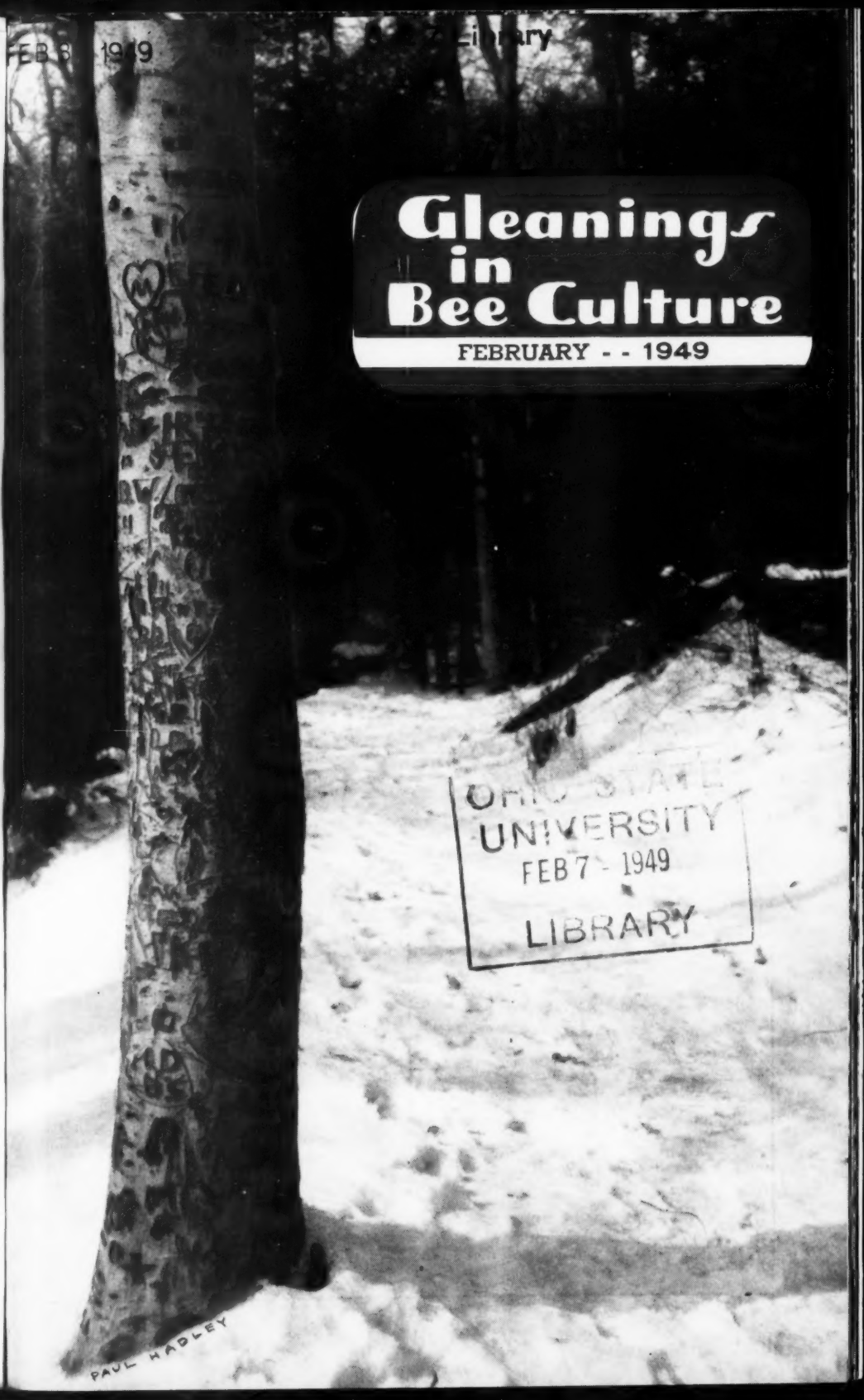

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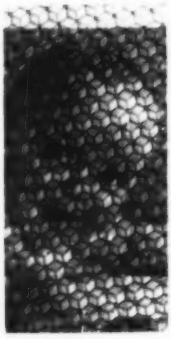
Save Money and Increase Your Crops with Dadant's Crimp-wired Foundation

Quickly inserted in the frame

Stands heavy loads and rough use

Supported with wires of crimped spring-steel through every inch of a pure beeswax sheet, Dadant's Crimp-wired Foundation gives you everlasting combs that save you money every year. Good queens lay in them freely, producing all-worker brood. The result is a large field force and greater crops.

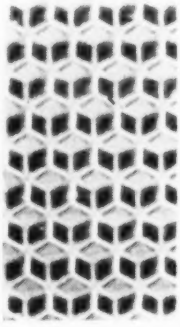


Surplus Foundation

Only the lightest colored and the sweetest, cleanest beeswax goes into Dadant's Surplus Foundation. It quickly becomes a delicate and edible part of fine section comb and bulk comb honey.

Plain Foundation

For those who prefer plain (unwired) foundation, this carefully milled, hand-sorted foundation with nice, straight rows of uniform cells is ideal. It is carefully packed in tissue to reach you without damage.



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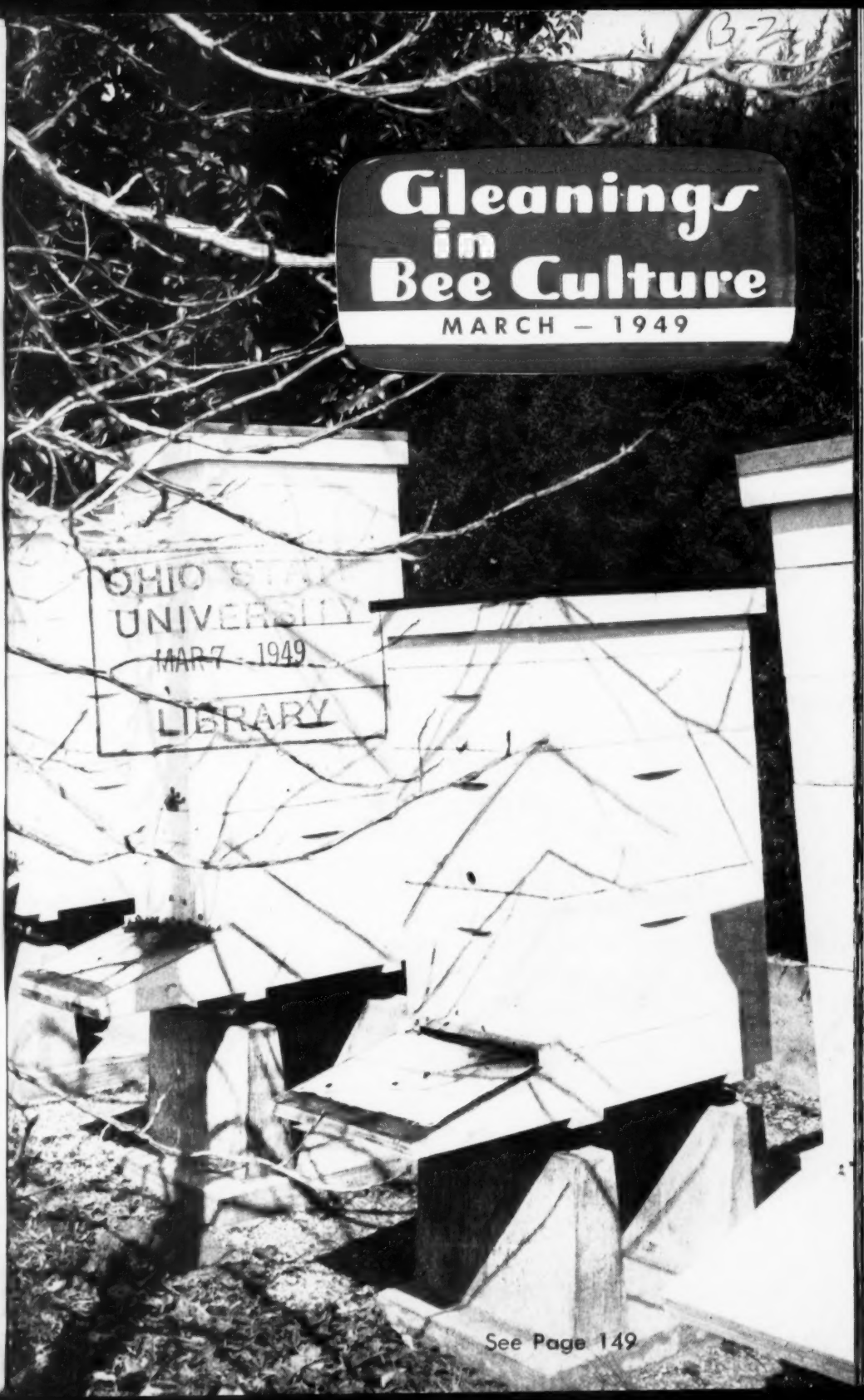
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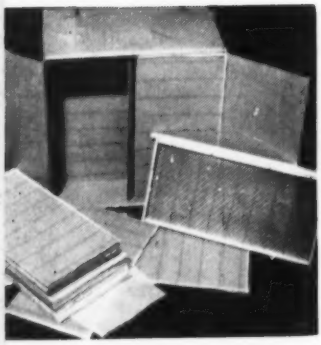

IN HEAT OR COLD
THE CRIMPS WILL HOLD

How About Your Combs?

Go into any apiary where Dadant's Crimp-wired Foundation is used and bend over the hives with the owner. He will show you comb after comb, just like the ones shown here. They are solid combs, built out fully. Queens can lay from side to side and from top to bottom; honey can be filled in to the very corners. There is more brood room, more eggs are laid, more bees out, and more powerful colonies.

Dadant's Crimp-wired Foundation Makes the Small Hive Big
The Big Hive Bigger

REMEMBER—Super Foundation Becomes a Part of Your Honey

In bulk comb or section comb honey, Dadant's Super Foundation is quickly molded into delicate comb, a delight to the tongue and the taste.

Only the best and lightest beeswax is used; carefully refined; pure and clear; cooled and sheeted so each sheet will be clear and transparent.

Dadant and Sons

DADANT'S FOUNDATION
CHOICE OF EXPERT BEEKEEPERS

Hamilton, Illinois

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Save
Money
Increase
Crops

with Dadant's Crimp-wired Foundation

Quickly assembled; stands rough use and heavy loads. Makes everlasting combs that save you money every year. All worker cells give large field force and greater crops.

Plain Foundation

Carefully milled, hand sorted. Nice straight rows of uniform cells. Carefully packed in tissue to reach you without damage.

Surplus Foundation

Light colored, clean, sweet beeswax. It quickly becomes a delightfully edible part of fine section comb and bulk comb honey.

Dadant and Sons DADANT'S FOUNDATION CHOICE OF EXPERT BEEKEEPERS **Hamilton Illinois**

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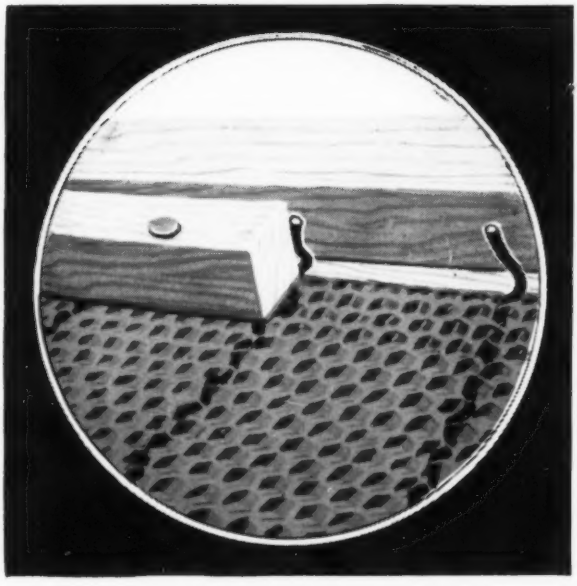

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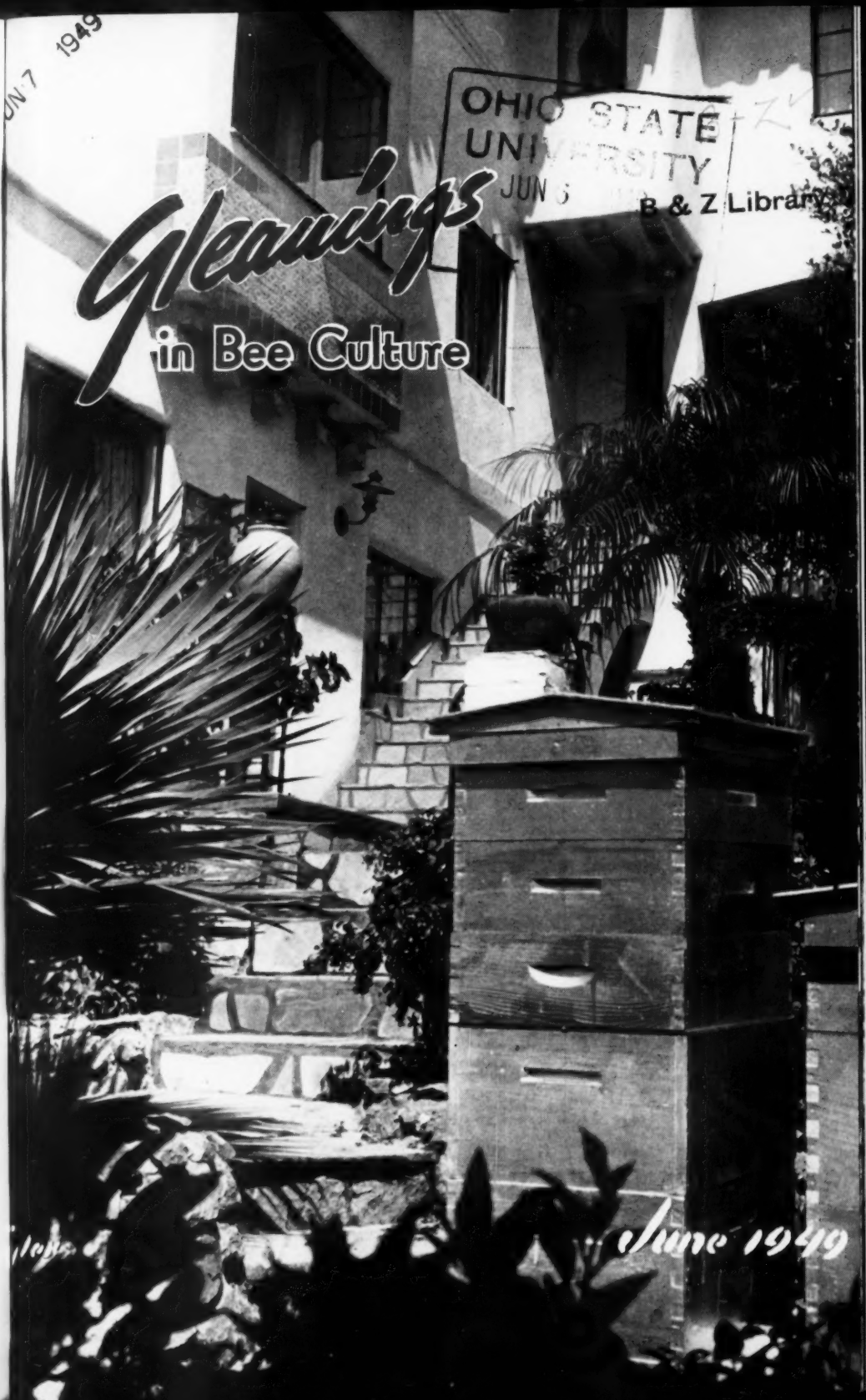

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Money Save Crops Increase

with Dadant's Crimp-wired Foundation

Quickly assembled; stands rough use and heavy loads. Makes everlasting combs that save you money every year. All worker cells give large field force and greater crops.

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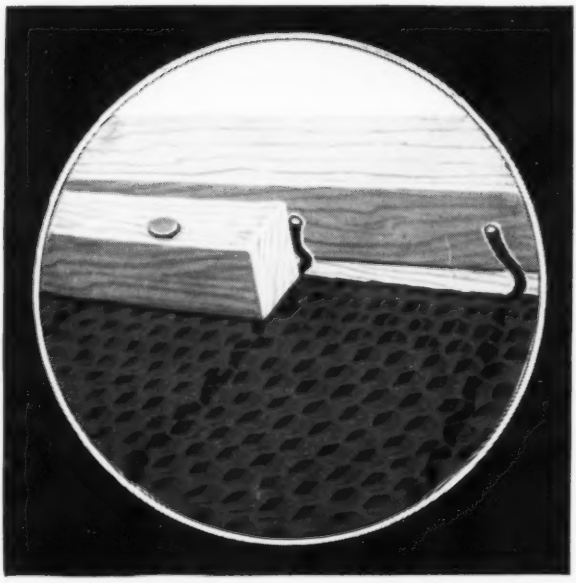

Surplus Foundation

Light colored, clean, sweet beeswax. It quickly becomes a delightfully edible part of fine section comb and bulk comb honey.

Dadant and Sons

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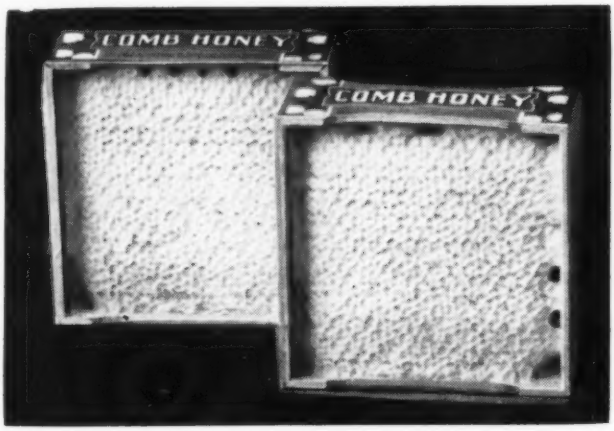

Fancy Comb Honey

Premium Bulk Comb

There is no market as good as that for fancy comb honey and Dadant's Surplus Foundation will help raise your comb honey grades and increase your profits. It is dainty, clear, and delightful; made of pure, fragrant capping wax, refined to remove every impurity. It is readily accepted by the bees to be drawn into tissue-thin comb, so delicate that a touch of the tongue will crumble it in the mouth. It is milled by experts who have been studying foundation making for well over fifty years. Every sheet is inspected to remove any that may be imperfect. It is then packed between tissue and sealed in cartons so that it may reach you in perfect condition.

A special, light colored foundation is also made to suit the growing demand for cut comb and bulk comb honey, for wrapping in cartons or cellophane or packing in glass. There is no prettier package than pure white comb in glass, surrounded with a fine grade of liquid honey.

Authorized dealers everywhere

Dadant & Sons, Inc. Hamilton, Illinois

Makers of Famous Bee Comb Foundations

Crimp-wired — Plain Brood — Premium Surplus

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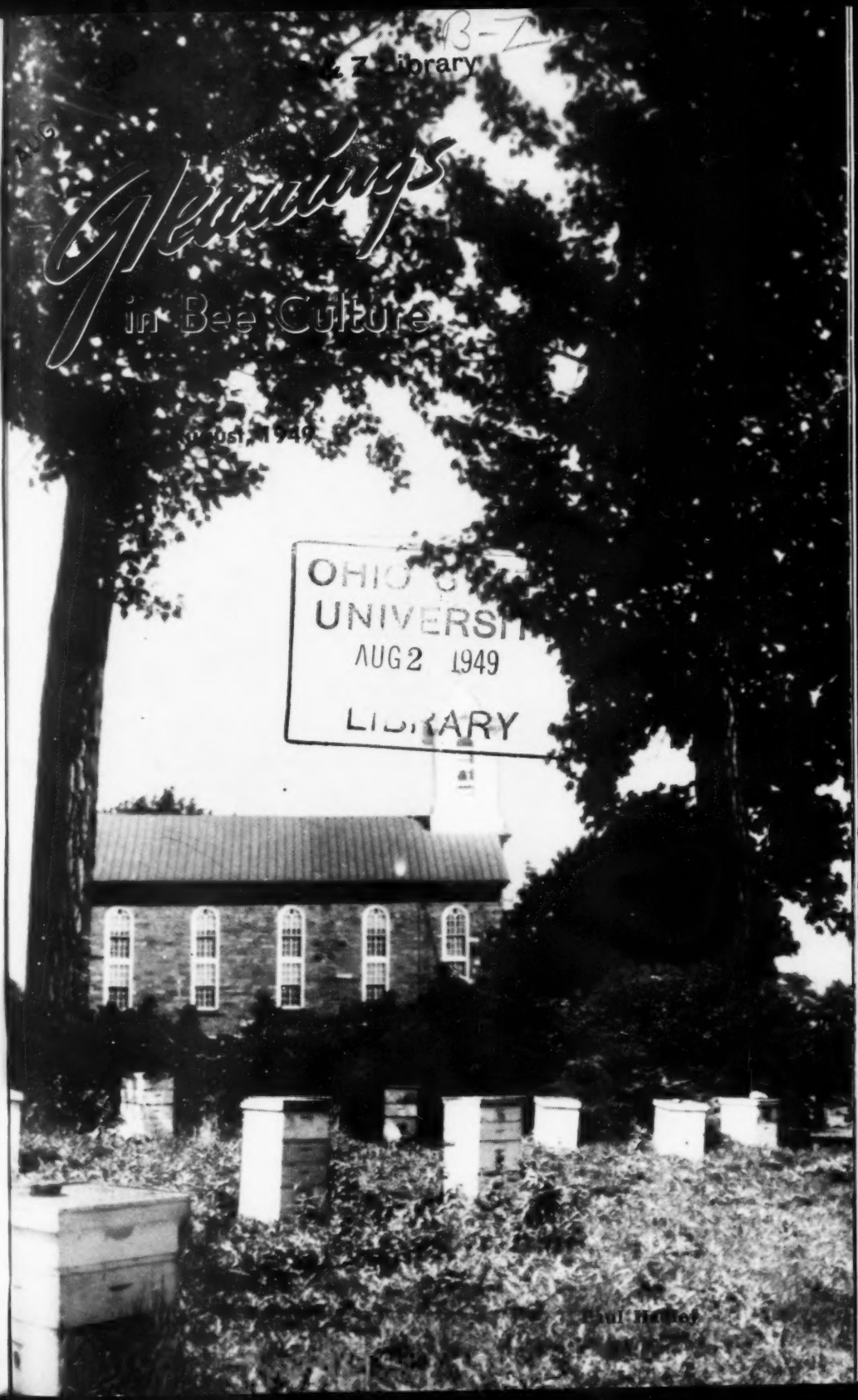

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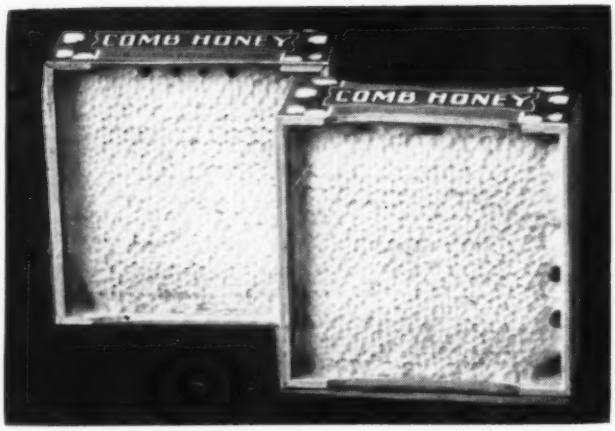

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Premium Bulk Comb

There is no market as good as that for fancy comb honey and Dadant's Surplus Foundation will help raise your comb honey grades and increase your profits. It is dainty, clear, and delightful; made of pure, fragrant capping wax, refined to remove every impurity. It is readily accepted by the bees to be drawn into tissue-thin comb, so delicate that a touch of the tongue will crumble it in the mouth. It is milled by experts who have been studying foundation making for well over fifty years. Every sheet is inspected to remove any that may be imperfect. It is then packed between tissue and sealed in cartons so that it may reach you in perfect condition.

A special, light colored foundation is also made to suit the growing demand for cut comb and bulk comb honey, for wrapping in cartons or cellophane or packing in glass. There is no prettier package than pure white comb in glass, surrounded with a fine grade of liquid honey.

Authorized dealers everywhere

Dadant & Sons, Inc. Hamilton, Illinois

Makers of Famous Bee Comb Foundations
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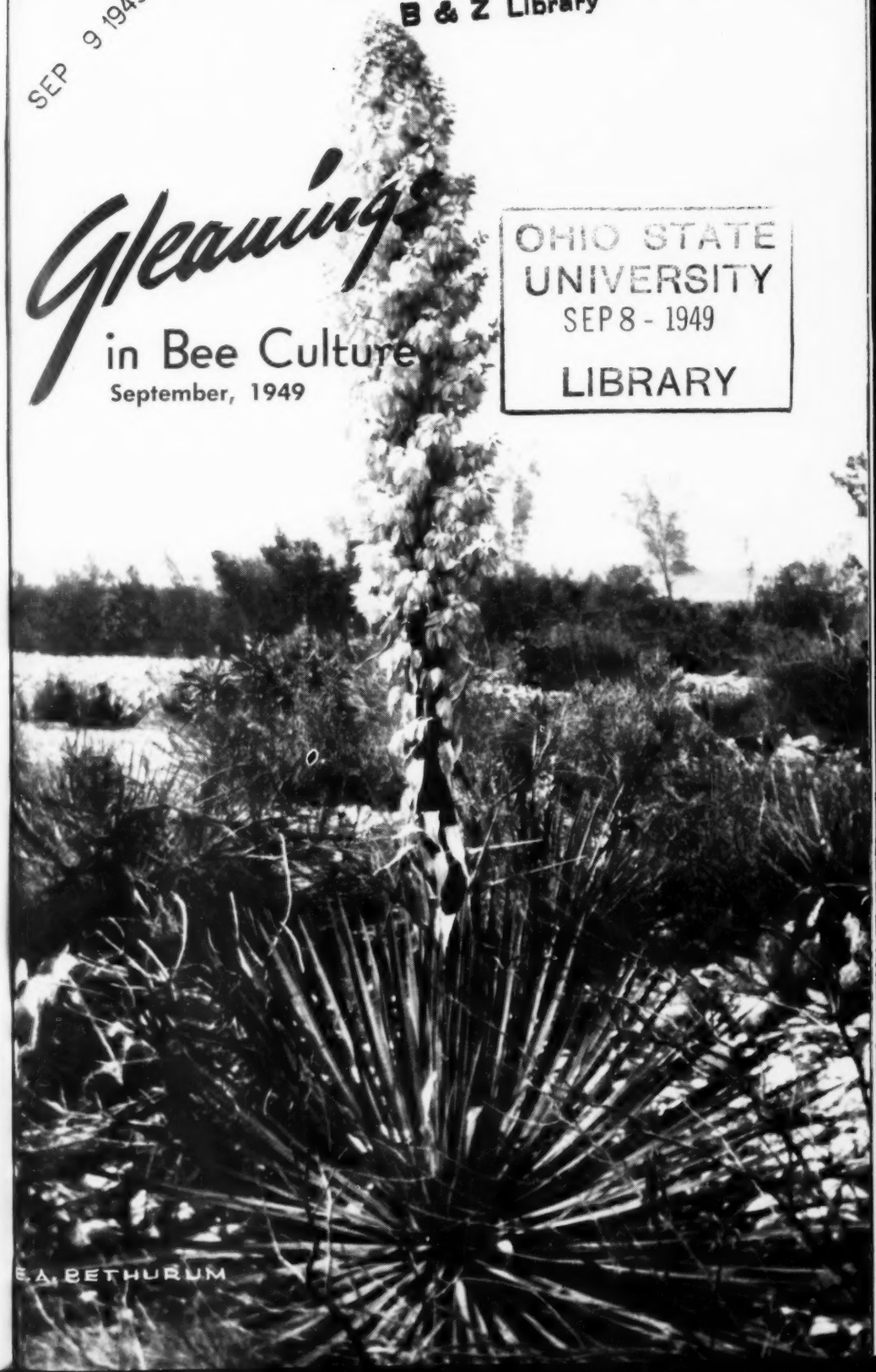

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1949 Fall Price List

Cans – Jars – Servers – Wrappers
Shipping Cases – Cartons

Extracting equipment, melters, knives, tanks, gas plant power uncappers, acid equipment, bee escapes, scales, bolting cloth.

Send for your complete catalog of our fall price list

Honey Labels

Labels that sell honey. A complete catalog will be sent you without cost with many individual labels in different designs; and series labels with the same design; single color and multi-color. Each label can be placed on your container so you can judge which one you want. For all sizes of glass and tin.

Send for complete label catalog

New Edition

"The Hive and the Honeybee"

A complete revision of this big 650-page book; several new authors with new material and everything brought up-to-date; many new pictures. First edition sold out in eighteen months. New edition better in every way. Read it this winter and get acquainted with the new ideas you can use next season. Price with a full year of the American Bee Journal, $5.50. (Regular book price, $4.00.)

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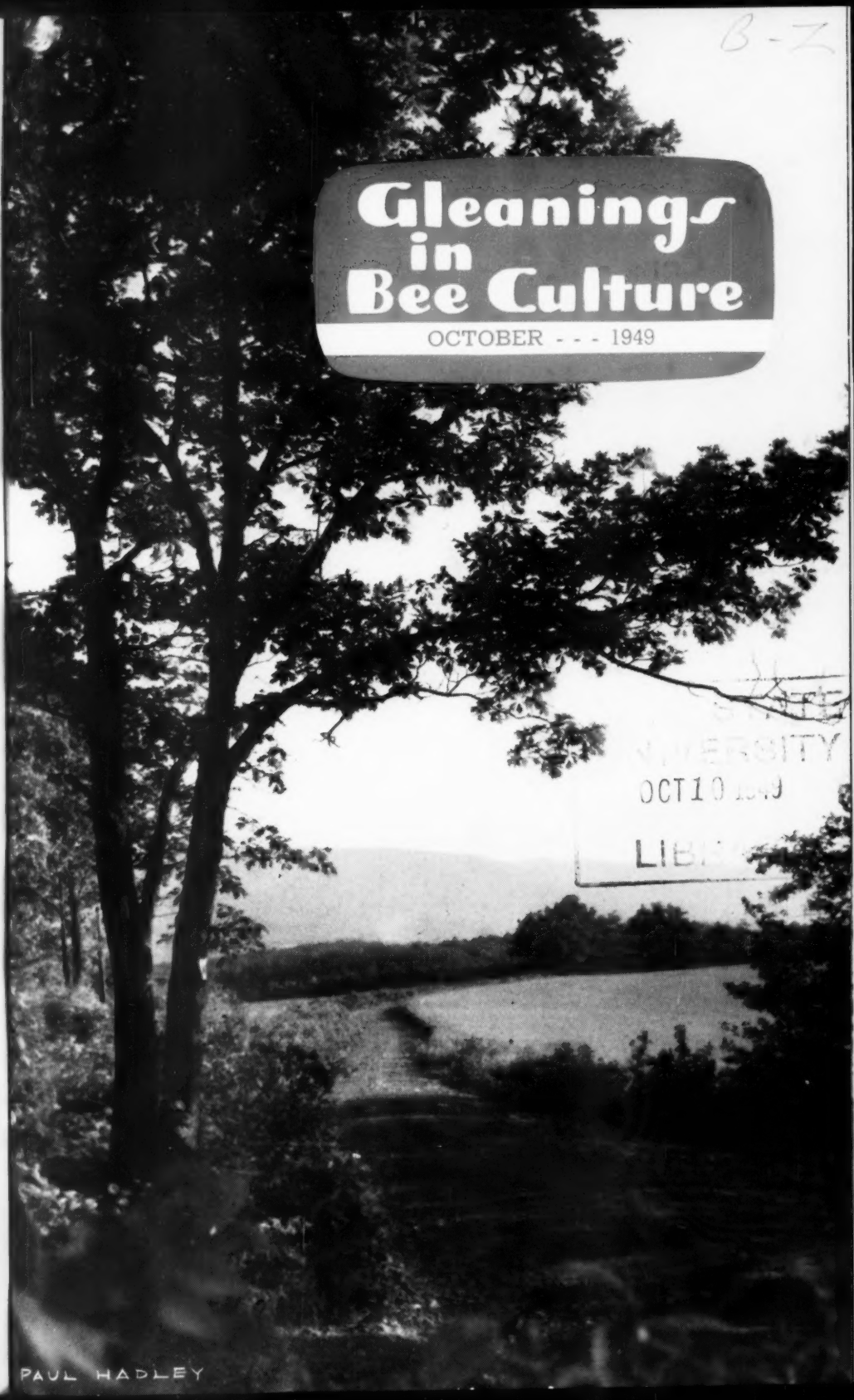

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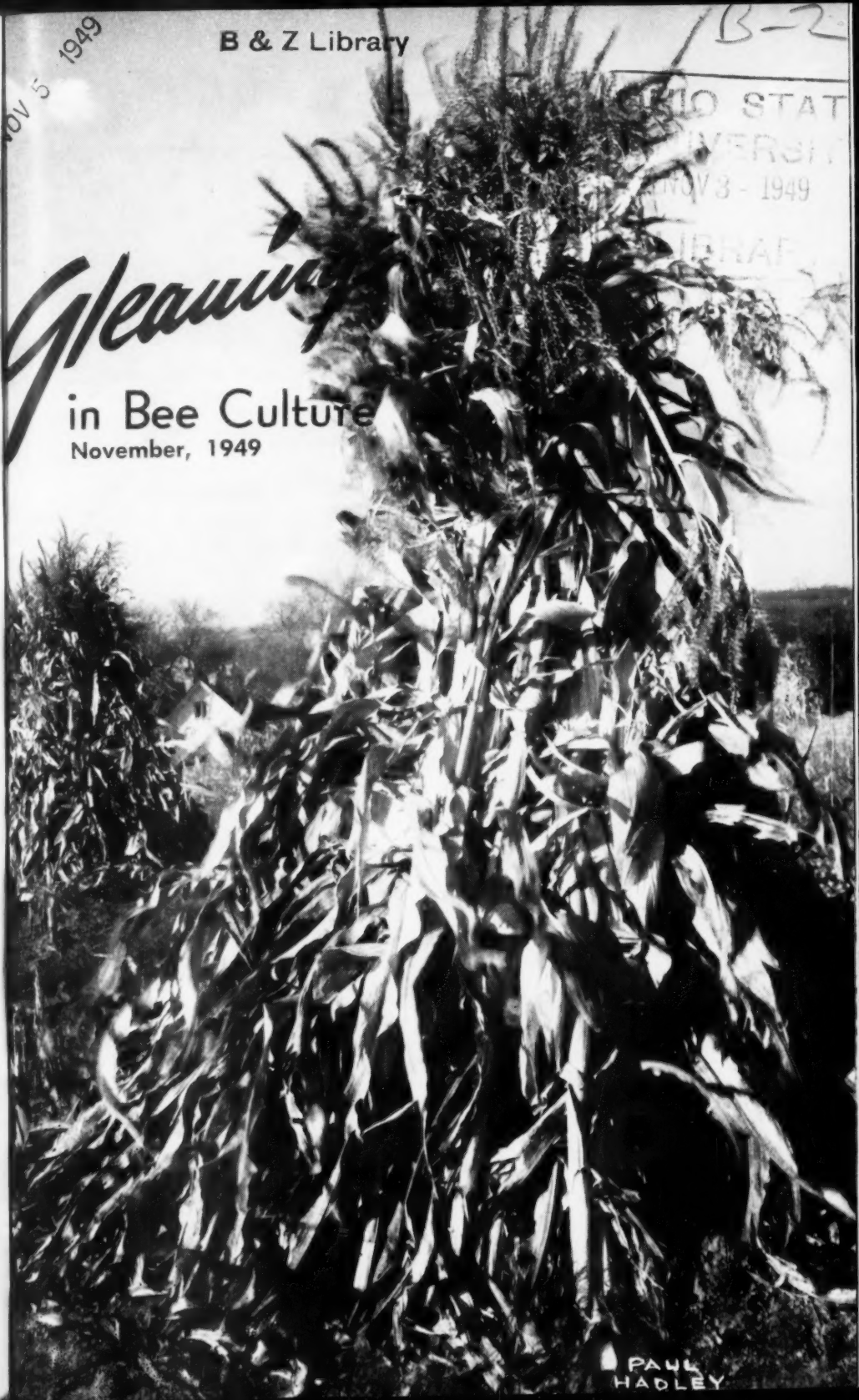

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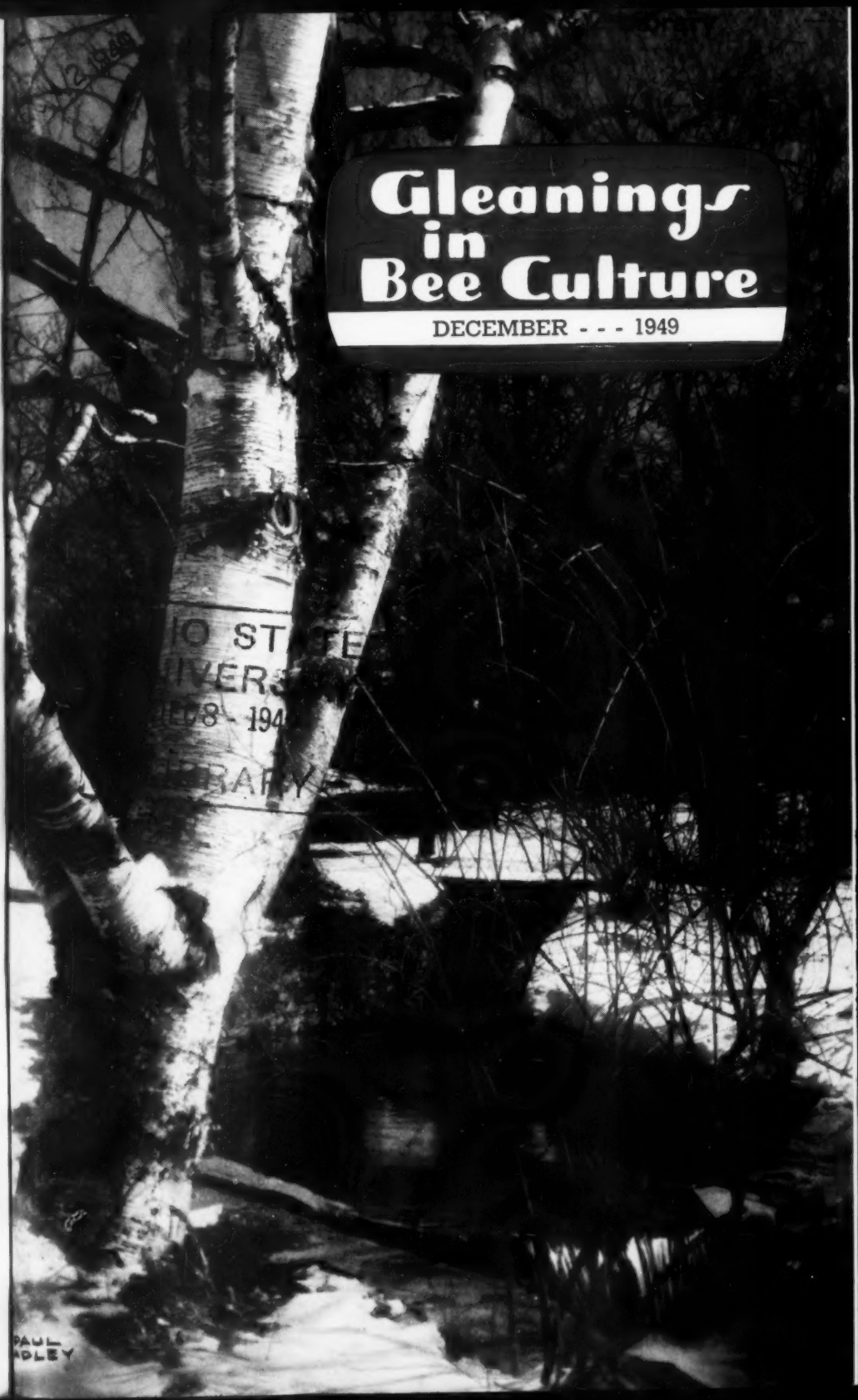

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